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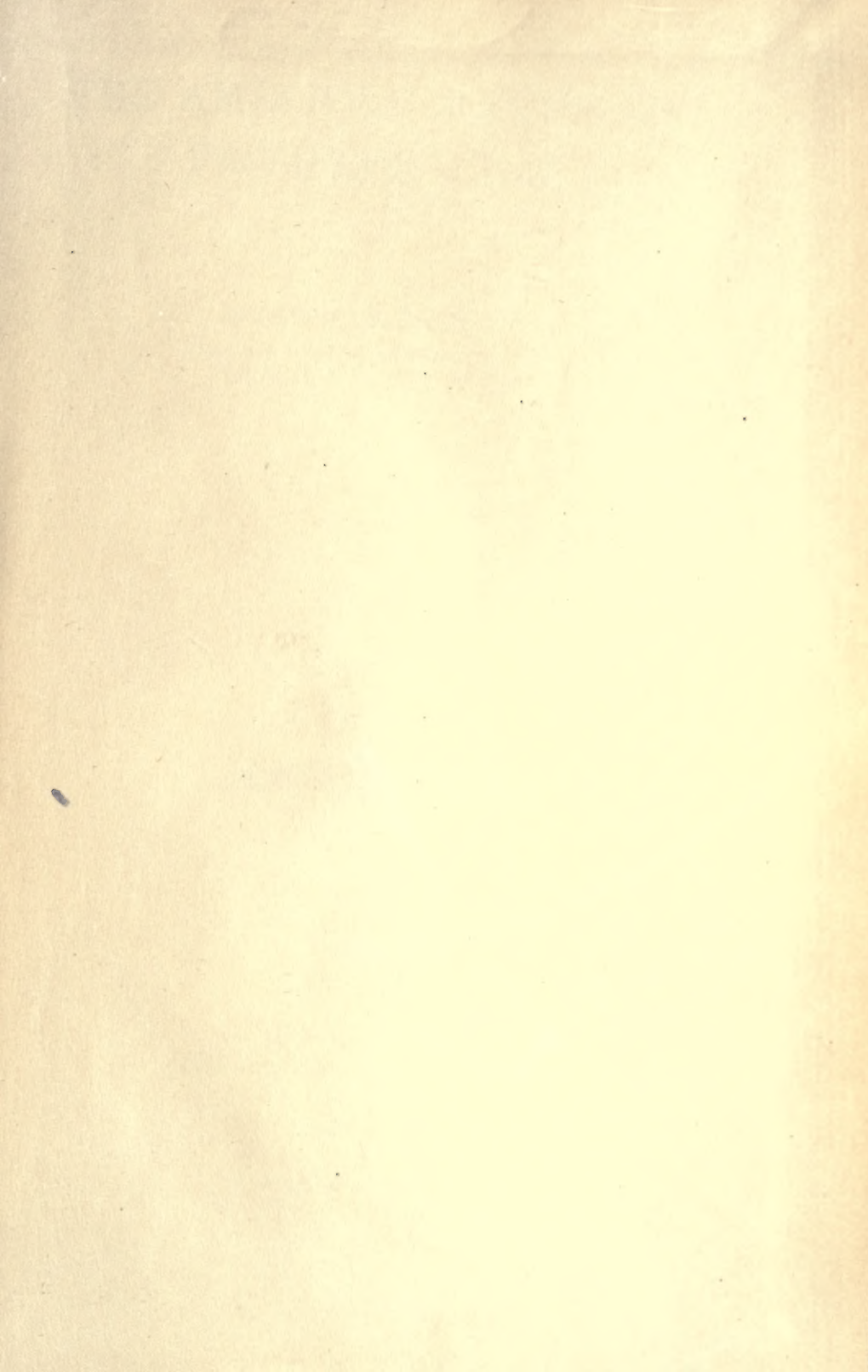
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THE AMERICAN SPECIES OF PASSIFLORACEAE

BY

ELLSWORTH P. KILLIP

ASSOCIATE CURATOR, DIVISION OF PLANTS
UNITED STATES NATIONAL MUSEUM

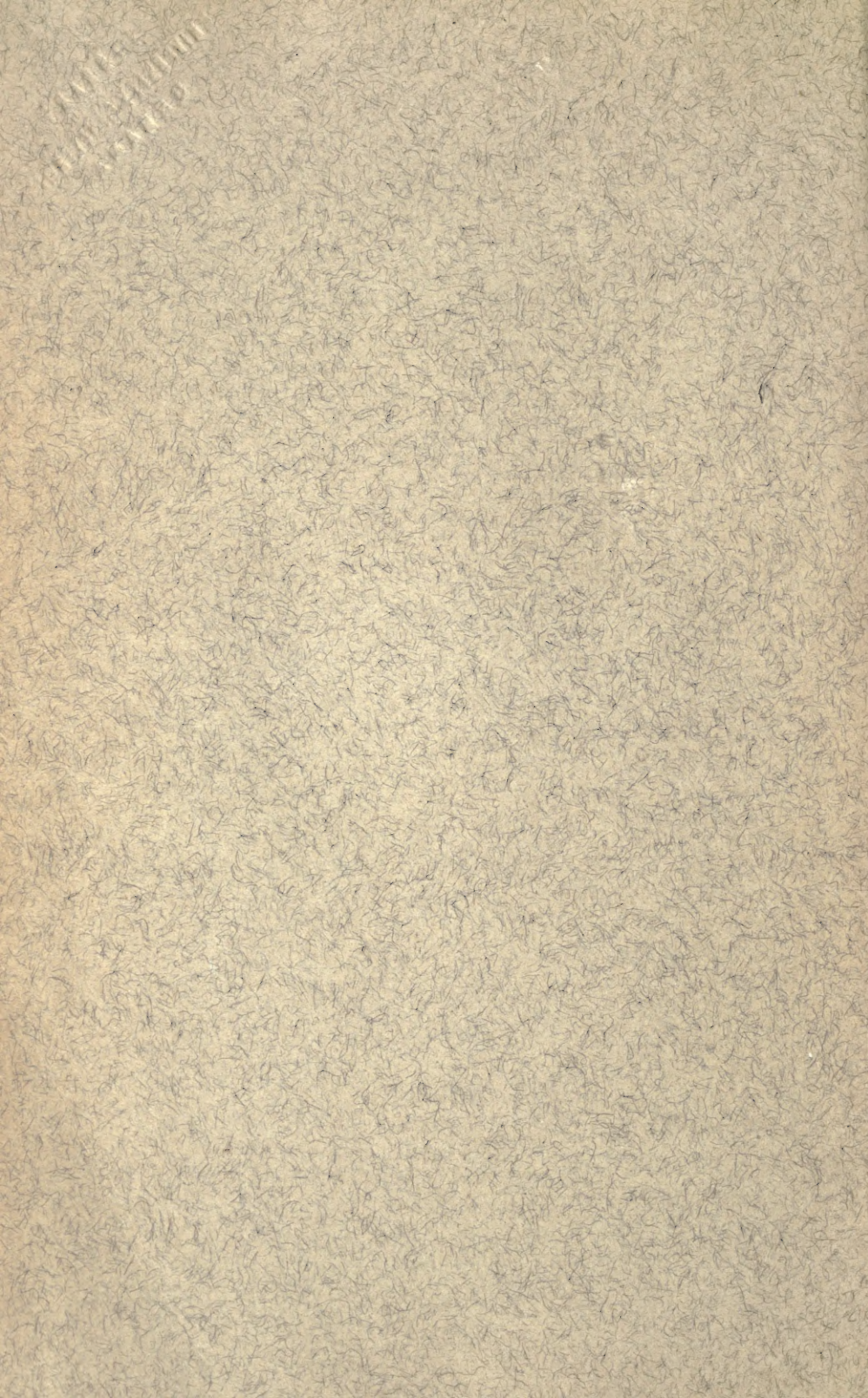


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BOTANICAL SERIES
FIELD MUSEUM OF NATURAL HISTORY
VOLUME XIX, PART II
APRIL 20, 1938

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Natural History Library



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THE AMERICAN SPECIES OF PASSIFLORACEAE

ELLSWORTH P. KILLIP

Subgenus XVIII. GRANADILLA

Series 1. Quadrangulares

195. *Passiflora quadrangularis* L. Syst. ed. 10. 1248. 1759.

Granadilla quadrangularis Medic. Malvenfam. 97. 1787.

Passiflora quadrangularis var. *sulcata* Jacq. Stirp. Amer. 232. 1763.

Passiflora tetragona M. Roemer, Fam. Nat. Syn. 2: 165. 1846.

Passiflora macrocarpa Mast. Gard. Chron. 1869: 1012. 1869.

Plant glabrous throughout; stem stout, 4-angled, the angles conspicuously winged; stipules ovate or ovate-lanceolate, 2 to 3.5 cm. long, 1 to 2 cm. wide, acute at apex, narrowed at base, entire or slightly serrulate, thin-membranous; petioles 2 to 5 cm. long, stout, canaliculate along upper side, 6-glandular, the glands in pairs, nearly sessile; leaves entire, broadly ovate or ovate-oblong, 10 to 20 cm. long, 8 to 15 cm. wide, abruptly acuminate, rounded, subtruncate, shallowly cordate, entire at margin, penninerved, the midnerve prominent, strongly elevated beneath, the principal lateral nerves 10 to 12 to a side, elevated beneath; peduncles 1.5 to 3 cm. long, 3-angled; bracts cordate-ovate, 3 to 5.5 cm. long, 1.5 to 4 cm. wide, acute or acutish, entire or serrulate toward base, thin-membranous; flowers up to 12 cm. wide; calyx tube campanulate; sepals ovate or ovate-oblong, 3 to 4 cm. long, 1.5 to 2.5 cm. wide, concave, cucullate at apex, corniculate, greenish or greenish red without, white, violet, or pinkish within; petals oblong-ovate to oblong-lanceolate, 3 to 4.5 cm. long, 1 to 2 cm. wide, obtuse, flat, white, deeply pink-tinged; corona 5-ranked, the 2 outer ranks filamentose, subequal (filaments up to 6 cm. long, equaling or somewhat longer than the sepals, terete, radiate, banded with reddish purple and white at base, blue at middle, densely mottled with pinkish blue in upper half), the third rank tubercular (tubercles clavate, about 2 mm. long, deep reddish purple), the fourth rank filamentose (filaments 1 to 1.5 mm. long, banded with reddish purple and white), the innermost rank membranous, 3 to 7 mm. long, unequally lacerate-cleft, slightly inclined inward; operculum membranous, 4 to 6 mm. long, inclined

inward, denticulate, white, reddish purple at margin; limen annular, fleshy; gynophore stout, enlarged in lower third by 2 annular processes (trochlea); ovary ovoid; fruit oblong-ovoid, 20 to 30 cm. long, 12 to 15 cm. wide, terete or longitudinally 3-grooved; seeds broadly obcordate or suborbicular, 7 to 10 mm. long, 5 to 8.5 mm. wide, strongly flattened, reticulate at center of each face, radiately striate at margin.

TYPE LOCALITY: Jamaica.

ILLUSTRATIONS: Jacq. Stirp. Amer. *pl.* 143; Cav. Diss. 10: *pl.* 283; Bot. Reg. 1: *pl.* 14; Vell. Fl. Flumin. 9: *pl.* 76; Tussac, Fl. Antill. 4: *pl.* 10, 11; Trans. Linn. Soc. 2: *pl.* 3; 27: *pl.* 64, *f.* 1-6, *pl.* 65, *f.* 8-10; Bull. Herb. Boiss. 5: *pl.* 19, 20; Bull. Soc. Bot. France 47: *pl.* 12; Garden 59: 7; Bailey, Cycl. Amer. Hort. 1221. *f.* 1651; Stand. Cycl. Hort. 2482. *f.* 2770; Gard. Chron. III. 44: 444; Popenoe, Man. Trop. Fr. 247. *f.* 31; Mart. Fl. Bras. 13, pt. 1: *pl.* 115; Smiths. Inst. Ann. Rep. 1920: *pl.* 19. 1922; Ochse, Fruit & Fruitcult. in Dutch E. Ind. *pl.* 40. 1931; Mutis, Icon. Pl. Ined. 26: *pl.* 3.

DISTRIBUTION: Cultivated throughout tropical America, at elevations up to 2,500 meters, its native region uncertain.

MEXICO: Chiapas: *Seler* 1969 (B).

GUATEMALA: Alta Verapaz: Panzós, *J. D. Smith* 1626 (N).—Suchitepéquez: Cuyotenango, *J. D. Smith* 2466 (K, N). Las Animas, *Shannon* 447 (N).—Escuintla: Escuintla, *J. D. Smith* 2088 (N, Y).

SALVADOR: San Salvador, *Calderón* 52 (G, N). Tonacatepeque, *Standley* 19485 (G, N).

NICARAGUA: "Ile d'Omotepe," *Lévy* 1145 (Bo, Gen, P). San Juan de Nicaragua, *Friedrichsthal* 546 (V). Chontales, *R. Tate* 109 (K).

COSTA RICA: *Pittier* 3904 (Brux). Shirores, *Tonduz* 9325 (Brux, N). Río Turrialba, *Pittier* 13207 (*J. D. Smith* 7522; K, N, V). Las Vueltas, *Tonduz* 13001 (Bo, N). Cairo, *Standley & Valerio* 48400 (N), 48420 (N). Llanuras de Santa Clara, *J. D. Smith* 6527 (N). Guápiles, *Standley* 37159 (N). El Coyolar, Alajuela, *Standley* 40041 (N). Puerto Jiménez, *Brenes* 12260 (F).

PANAMA: *Seemann* 119 (K).—Canal Zone: Chagres, *Fendler* 119 (N).—Panama: Juan Díaz, *Standley* 32057 (N).

BAHAMAS: *Curtiss* 195 (B, BM, P).

CUBA: Habana: Santiago de Las Vegas, *Killip* 13521 (N); *Van Hermann* 616 (F, K, Mo, N, P). Finca Mulgoba, *Van Hermann*

8092 (HV).—Oriente: Baracoa, *Ekman* 4341 (S). Sierra de Nipe, *Ekman* 6503 (S).

HAITI: Tortue Island, *Leonard & Leonard* 12455 (N). Massif du Nord, *Ekman* H3820 (N).

DOMINICAN REPUBLIC: *Poiteau* (B, Gen, P). Río San Juan, *Miller* 1192 (N).

JAMAICA: *Browne* (Linn, type). Hope Gardens, *G. N. Collins* 63 (N); *Harris* 660 (BM, Cal, J); *Perkins* 43 (B).

PUERTO RICO: Río Piedras, *Stevenson* 6715 (N). Bayamón, *Sintenis* 531 (B); 1122 (B, BM, G, N, V). Mayagüez, *Sintenis* 490 (B). Adjuntas, *Underwood & Griggs* 778 (N). Sierra de Naguabo, *Shafer* 3483 (N, Y).

ST. CROIX: *Ricksecker* 279 (F, N), 279bis (F).

SABA: *Boldingh* (Ut).

ST. EUSTATIUS: *Van Groll* (V).

GUADELOUPE: *Duss* 3779 (Cop, F, N); *Stehlé* 462 (N).

MARTINIQUE: *Bélanger* 431 (P); *Duss* 884 (N).

ST. VINCENT: *H. H. Smith* 183 (N).

TRINIDAD: *Trinidad Herb.* 2589 (T). Royal Botanic Garden, *Bailey Ta* (N), *Tb* (G, N).

SURINAM: *Dahlberg* (Linn). Cupido, *B. W.* 838 (Ut). *Wulfschlägel* 982 (Brux).

BRITISH GUIANA: *Jenman* 6427 (N). Kabakaburi, Pomeroon District, *De la Cruz* 3298 (N, Y).

VENEZUELA: Federal District: Caracas, *Pittier* 12403 (N).

COLOMBIA: San Bartolomé, Río Magdalena, *Humboldt & Bonpland* 1623 (P).—Bolívar: Río Sinú, *Pennell* 4662 (Y).—Santander: Puerto Wilches, *Killip & Smith* 14734 (A, G, N, Y), 14823 (A, G, N).—Boyacá: El Humbo, *Laurance* 585 (S).—Cundinamarca: La Esperanza, *Ariste Joseph* B87 (N); *Cuatrecasas* 3246 (Ma).—Huila: Neiva, *Pennell* 1135 (Y).—Tolima: Honda, *Ariste Joseph* B111 (N).—El Chocó: Quibdó, *Archer* 1852 (N). La Concepción, *Archer* 2087 (N).—El Valle: *Dryander* 162 (B). Cisneros, *Killip* 11494 (G, N, Ph, Y).

ECUADOR: Oro: Portovelo, *Rose* 23398 (N).

PERU: San Martín: San Roque, *L. Williams* 7250 (N).—Loreto: Iquitos, *Killip & Smith* 27152 (N, Y). Río Itaya, *L. Williams* 188

(F).—Huánuco: Ambo, *Macbride & Featherstone 2422* (F, N). Chinchao, *Ruiz & Pavón* (Ma).

BOLIVIA: La Paz: Coripata, *Bang 2198* (BM, Bo, F, G, Gen, N, Ph, V, Y). Tipuani, *Buchtien 7384* (N). Apolo, *R. S. Williams 1555* (BM, N, Y).

BRAZIL: Amazon River, *Trochon 28* (P).—Minas Geraes: Viçosa, *Mexia 4138a* (Cal).

Passiflora quadrangularis is extensively cultivated in tropical America. The thick rind is often made into sweetmeats or preserves; the pulp has usually a pleasant flavor, and is used with or without sugar, or cooked with milk.

Masters segregated *P. macrocarpa* from *P. quadrangularis*, but the justification of this segregation is doubtful. The principal differences noted by him between the two were: *P. quadrangularis*—sepals white within; petals red, longer than the sepals; outermost corona filaments equaling the petals; innermost corona filaments dentiform; fruit smaller than in *P. macrocarpa*, not grooved; *P. macrocarpa*—sepals violet within; petals violet, shorter than the sepals; outermost corona filaments longer than the petals; innermost corona filaments elongate; fruit very large, 3-grooved.

The herbarium specimens here cited certainly do not show such a definite correlation of characters, nor do notes made by collectors, though meager, indicate that two species are represented. The description of the coloring of the floral parts here given is based on personal field observations (*Killip & Smith 27152*). Fruits which I have examined in tropical markets show much variation in size and in the degree to which they are grooved. The few specimens preserved in the Kew Herbarium, where Masters carried on his studies, do not appear to fall into two readily distinguishable species. A single plant in flower and fruit in the Kew conservatories, passing under the name *P. quadrangularis*, has the relatively small fruits of that species but the outermost corona filaments are much longer than the petals, as in Masters' *P. macrocarpa*. Until a thorough study of living material from various parts of tropical America has been made, with a view to demonstrating conclusively the distinctness of *P. macrocarpa*, it seems best to regard it at most as a horticultural form of *P. quadrangularis*.

Probably *P. Allardii* is a horticultural hybrid of *P. quadrangularis* and *P. caerulea*. It is represented in herbaria by *Standley & Valerio 44024* (N) and *Pittier 481* (Brux), both cultivated near San José, Costa Rica.

LOCAL NAMES: "Granadilla" (throughout Spanish America); "granadilla real" (southern Mexico and Central America); "sandía de la Pasión" (Tepic and Guerrero); "barbadine" (French Antilles); "parcha granadina" (Venezuela); "mereëkoeja," "mereëkoeja fire-beroe," "groote markoesa" (Surinam); "badea" (Colombia and northern Ecuador); "tumbo" (southern Ecuador and Peru); "badera" (Colombia and Ecuador); "quijón" (Bolivia); "maracujá-assú," "maracujá uaçu," "maracujá mamão" (Brazil).

196. *Passiflora alata* Dryand. Bot. Mag. 1: pl. 66. 1781.

Passiflora mauritiana Du Pet.-Thouars, Ann. Mus. Hist. Nat. 6: 457. pl. 65. 1805.

Passiflora maliformis Vell. Fl. Flumin. 9: pl. 73. 1827. Not *P. maliformis* L.

(?) *Passiflora tetradena* Vand. in DC. Prodr. 3: 331. 1828. Not *P. tetraden* Vell.

(?) *Passiflora latifolia* DC. Prodr. 3: 328. 1828.

(?) *Passiflora pyriformis* DC. Prodr. 3: 331. 1828.

Passiflora brasiliiana Desf. Cat. Pl. Hort. Reg. Paris ed. 3. 411. 1829.

Passiflora mascarensis Presl, Bot. Bemerk. 72. 1844.

Passiflora oviformis M. Roemer, Fam. Nat. Syn. 2: 167. 1846.

Passiflora alata var. *brasiliiana* Mast. Trans. Linn. Soc. 27: 635. 1871; in Mart. Fl. Bras. 13, pt. 1: 597. 1872.

Passiflora alata var. *latifolia* Mast. Trans. Linn. Soc. 27: 635. 1871; in Mart. Fl. Bras. 13, pt. 1: 597. 1872.

Passiflora alata var. *mauritiana* Mast. Trans. Linn. Soc. 27: 635. 1871; in Mart. Fl. Bras. 13, pt. 1: 597. 1872.

Passiflora sarcosepala Barb. Rodr. Contr. Jard. Bot. Rio de Janeiro 4: 93. pl. 15. 1907.

Plant glabrous throughout; stem stout, 4-angled, the angles winged; stipules linear or linear-lanceolate to ovate-lanceolate, 1 to 2 cm. long, 0.3 to 1 cm. wide, entire or serrulate; petioles 3 to 5 cm. long, channeled above, bearing 2 to 4 sessile, orbicular glands; leaves ovate or ovate-oblong, 8 to 15 cm. long, 7 to 10 cm. wide, acuminate at apex, rounded, subcordate, or subcuneate at base, entire or minutely denticulate, penninerved (principal secondary nerves 7 or 8 to a side, those of the upper half distant), membranous; peduncles 1.5 to 2.5 cm. long, slightly trigonous; bracts borne at base of flower, ovate, about 1.5 cm. long, 1 cm. wide, acute or acutish,

serrulate, distinct to base; flowers 10 to 12 cm. wide, sepals oblong, obtuse, aristate on outer surface about 5 mm. below apex, green without, deep crimson or carmine within; petals oblong, obtuse, white without, deep crimson or carmine within; corona 4-ranked, the 2 outer ranks filamentose, the filaments subulate, 3 to 4 cm. long, variegated with red, white, and purple, the 2 inner ranks tuberculate, 2 to 3 mm. long; operculum horizontally spreading inward, incurved and denticulate at margin; limen annular, fleshy; gynophore bearing 2 annular processes near middle; ovary oblong or obovate, obscurely sulcate; fruit obovoid or pyriform, 8 to 10 cm. long, 4 to 6 cm. wide, yellow.

TYPE LOCALITY: Described from a plant cultivated in England; probably a native of Brazil.

ILLUSTRATIONS: Bot. Mag. 2: *pl.* 66; 46: *pl.* 2041; Trans. Linn. Soc. 2: *pl.* 3; 27: *pl.* 64, *f.* 7-18; Bot. Cab. 3: 246; Mém. Mus. Hist. Nat. 5: *pl.* 31, *f.* 18; Mart. Fl. Bras. 13, pt. 1: *pl.* 114; Vell. Fl. Flumin. 9: *pl.* 73; Ann. Mus. Hist. Nat. 6: *pl.* 65; Engl. & Prantl, Pflanzenfam. 3, pt. 6a: 90, *f.* 31; ed. 2, 21: 503. *f.* 232; Gard. Chron. III. 15: 19; 22: 449-451; 43: 187, *f.* 79; Contr. Bot. Jard. Rio de Janeiro 4: *pl.* 15.

DISTRIBUTION: Northeastern Peru; eastern Brazil, where apparently indigenous; often cultivated in Europe.

PERU: *Dombey* (or *Pavón*?) 738 (BM, Bo, Gen, P, type of *P. latifolia*).—Loreto: Iquitos, Killip & Smith 27468 (N, Y).

BRAZIL: *Peckolt* (Brux). Pirahy, *Pohl* (V). São Sebastião, *Pohl* 920 (V). Portinho do Apollinario, *Pohl* 3108 (V).—Bahia: *Blanchet* 432 (Gen).—Matto Grosso: Campo Grande, *Archer* 3960 (N).—Minas Geraes: *Martius* (Brux). Caldas, *Regnell* III.642 (S). Igrejinha, *Chase* 8629 (Mich, N). Lagôa Santo, *Warming* 1154 (Cop). Viçosa, *Mexia* 4789 (Gen, N). Porto Novo, *Barreto* 1387 (N).—Rio de Janeiro: *Gaudichaud* 1033 (P); *Warming* 1180 (Cop); *Widgren* in 1844 (S); *Glaziou* 6549 (Cop, P). Parahyba do Sul, *St. Hilaire* 287 (P).—São Paulo: Campo Grande, *Edwan* 1956 (Cop). Serra de Caracol, *Mosén* 1326 (S). Campinas, *Heiner* 10 (S). Alto da Serra, *Dusén* 14217 (S).—Paraná: Jacarchy, *Dusén* 1014a (Gen, N, S). Volta Grande, *Dusén* 14154 (S). Porto de Cima, *Jönsson* (*Dusén* 612a; S).—Rio Grande do Sul: Porto Alegre, *Lindman* A605 (S).

This closely resembles *P. quadrangularis*, and in many cases the two are distinguished with difficulty. *Passiflora alata* has four, or

sometimes only two, petiolar glands and narrower stipules, and the leaves usually are smaller, with nerves farther apart and more strongly arcuate. Constant coronal differences between the two are not apparent in the herbarium material at hand, though Masters has noted that an "intermediary corona" is present between the operculum and the true (faucial) corona in *P. quadrangularis* and absent in *P. alata*.

Passiflora alata evidently is quite variable; some of the names here listed in synonymy may refer to plants that are sufficiently distinct from typical *P. alata* to constitute at least valid varieties. In Masters' variety *brasiliensis* the stipules are very narrow, scarcely more than 2 mm. wide; in his variety *mauritiana*, known only from the islands of Mauritius and Bourbon, the leaves are minutely denticulate. *Passiflora latifolia*, having four glands and broad leaves, is perhaps a hybrid of *P. quadrangularis* and *P. alata*.

The following are probably horticultural hybrids of this species: *P. Decaisneana* (*P. alata* × *P. quadrangularis*), *P. Lawsoniana* Hort., not Mast. (*P. alata* × *P. racemosa*).

LOCAL NAMES: "Maracujá de refresco" (Brazil).

Series 2. *Digitatae*

197. *Passiflora serrato-digitata* L. Sp. Pl. 960. 1753.

Passiflora serrata L. Syst. ed. 10. 1248. 1759.

Passiflora digitata L. Sp. Pl. ed. 2. 1360. 1763.

Passiflora palmata Lodd. Bot. Cab. 1: pl. 97. 1817.

Passiflora serrata var. *digitata* R. & P. ex DC. Prodr. 3: 330. 1828.

Passiflora digitata R. & P. ex M. Roemer, Fam. Nat. Syn. 2: 183. 1846.

Passiflora cearensis Barb. Rodr. Contr. Jard. Bot. Rio de Janeiro 4: 92. pl. 16. 1907.

Plant glabrous throughout (except bracts); stem terete; stipules linear-subulate, about 1.5 cm. long, minutely glandular-serrulate toward apex; petioles up to 10 cm. long, biglandular at apex and at middle, the glands clavate or ligulate, 1 to 3 mm. long; leaves up to 15 cm. long and 18 cm. wide, palmately 5-7-lobed to below middle (lobes oblong to oblanceolate, up to 4 cm. wide, acute or acuminate, finely serrulate), cordate, membranous, dull or lustrous; peduncles about 4 cm. long, slender; bracts ovate-lanceolate, 3 to 5 cm. long, united a quarter to a half their length, without finely

puberulent or essentially glabrous, green, often reddish-maculate, within glabrous, tomentose at margin, white; flowers 6 to 8 cm. wide; calyx tube funnel-shaped, 2 to 2.5 cm. long, about 2 cm. wide at throat, greenish white without, cream-white within, often pink-tinged without and within; sepals oblong, up to 3.5 cm. long, 1 to 1.5 cm. wide, obtuse, greenish white without, blue-tinged within; petals oblong, up to 3 cm. long, about 1.2 cm. wide, obtuse, pinkish blue; corona in several series, the 2 outer filamentose, the filaments radiate, banded with blue and white or purple and white in lower half, blue or banded with deep blue and pale blue in upper half, the outer filaments 1 to 1.5 cm. long, the inner 2 to 2.5 cm. long, the inner portion of the corona reduced to papillae or minute tubercles which are deep pink and arranged in 15 or more irregular and broken rows; operculum horizontally spreading inward, 2 to 3 mm. wide, filamentose toward margin, pink; gynophore white, bearing 2 thick, annular processes; ovary ovoid, stipitate; fruit globose, 4 to 5 cm. in diameter, the pericarp brittle, the pulp white, edible; seeds obovate, 6 to 7 mm. long, 3 to 3.5 mm. wide, tapering at base, reticulate with 20 to 25 reticulations to each face.

TYPE LOCALITY: Martinique.

ILLUSTRATIONS: Amoen. Acad. 1: *pl.* 10, *f.* 21; Plum. Pl. Amer. *pl.* 79; Cav. Diss. *pl.* 296; Bot. Cab. 1: *pl.* 97; Mart. Fl. Bras. 13, pt. 1: *pl.* 113; Contr. Jard. Bot. Rio de Janeiro 4: *pl.* 16; Cortés, Fl. Colomb. ed. 2, as *P. vitifolia*.

DISTRIBUTION: West Indies, Guianas, and Amazonian Brazil to southern Bolivia and Peru; tropical and subtropical zones; sometimes cultivated.

DOMINICAN REPUBLIC: El Jovero, Cordillera Central, *Ekman* 15721 (N).

PUERTO RICO: *Riédle* (P). Sierra de Naguabo, *Stevenson* 5210 (N, Y); *Sinten* 5426 (B, N). Bayamón, *Stahl* (B). Sierra de Luquillo, *Eggers* 1372 (B, Cop, N).

GUADELOUPE: *Duss* 603 (P), 2232 (B, Cop, N, Y); *Duchassaing* (B).

DOMINICA: *Imray* (B); *Ramage* in 1888 (B).

MARTINIQUE: *Plée* (P); *Duss* 878 (B, F, N, Y), 882 (B, N, Y).

ST. VINCENT: *H. H. Smith* 1312 (B, G).

TRINIDAD and TOBAGO: *Broadway* 2216 (BM, Brux, Gen), 9124 (K). Chatham, *Trinidad Herb.* 640 (T). Laventille, *Trinidad Herb.*

639 (T). Tabequita, *Trinidad Herb.* 10388 (T); Britton, *Freeman & Nowell* 2602 (G, N, T, Y). Mayaro, *Trinidad Herb.* 11749 (T). Carmichael, *Britton & Hazen* 1924 (G, N, Y). Caledonia, *Broadway* 4542 (B, BM, Cop, F, G). Trurure River, *Broadway* 7706 (BM, K, N).

FRENCH GUIANA: *Poiteau* (Gen, K).

SURINAM: *Hostmann & Kappler* 804 (Ut), 804a (S). Paramaribo, *Wulschlägel* 215 (Brux); *Focke* 1428 (Ut). Para, *Splitgerber* 1163 (Leid).

BRITISH GUIANA: "Introduced from Surinam," *Jenman* 3589 (BG), 6164 (BG, K), 6255 (BG).

PERU: *Pavón* (B, Gen, Ma). Hacienda Chalhupapuquio, *Stevens* 154 (N).—San Martín: Juanjui, *Klug* 4278 (N).—Loreto: Iquitos, *Killip & Smith* 27233 (F, N, Y), 27422 (F, N, Y); *L. Williams* 3751 (N). Yurimaguas, *Poeppig* 2172 (V); *Killip & Smith* 27849 (N, Y). Lower Río Huallaga, *L. Williams* 5153 (N). Río Ucayali, *Tessmann* 3373 (B, Gen). Pongo de Manseriche, *Tessmann* 4955 (Gen).—Junín: La Merced, *Killip & Smith* 23931 (F, N, Y), 24052 (F, N, Y). Paucartambo Valley, *Killip & Smith* 25422 (F, N, Y).—Ayacucho: Aina, *Killip & Smith* 22825 (F, N, Y).—Cuzco: Lares Valley, *Weberbauer* 7939 (BM, K, N).—Arequipa: Vito, *Ruiz & Pavón* (Bo).

BOLIVIA: Santa Cruz: Río Surutú, *Steinbach* 7201 (BM, Gen, K, S).

BRAZIL: *Hoffmansegg* (BW).—Amazonas: São Paulo de Olivença, *Krukoff* 8130 (Y).—Pará: Tapaná, *Killip & Smith* 30236 (N, Y). Porto Alegre, Río Purús, *Huber* 7015 (Go). Pará, *Burchell* 9963 (K). Laranjeiras, *Jobert* 288 (P). Río Tapajos, *Krukoff* 1263 (Gen, Ut, Y).—Rio de Janeiro: Rio de Janeiro (cultivated), *Kuhlmann* 7763 (S, Ut).

This species is at once recognized by the palmately 5–7-lobed leaves. The calyx tube is rather longer than in most species of *Granadilla*, and is lined within with numerous rows of minute tubercles, perhaps rudimentary corona filaments. Masters' figure does not appear to represent well the interior structure of the flower, as shown by field observations as well as by dissections of herbarium material. This figure shows a 2-ranked corona at the throat of the tube, with another row of filaments about a third of the way down the tube, and an "inframedia" corona (nectar ring) near the base. The tuberculate lining of the tube is not shown.

Hostman & Kappler 804a, determined as *P. filamentosa*, probably belongs here, although the leaves are only 3-lobed. The bracts are united in the lower half, and the petiolar glands are characteristic of *P. serrato-digitata*.

LOCAL NAMES: "Pomme d'agouti" (Guadeloupe); "tagua-tagua" (Puerto Rico); "maracujá pedra," "maracujú de cobra" (Brazil); "ccoto-gguante" (Peru).

Series 3. *Tiliaefoliae*

198. *Passiflora ligularis* Juss. Ann. Mus. Hist. Nat. 6: 113. *pl.* 40. 1805.

Passiflora ligularis var. *geminiflora* DC. Prodr. 3: 328. 1828.

Passiflora serratistipula DC. Prodr. 3: 328. 1828; Dess. Fl. Mex. 1: *pl.* 31. 1874.

Passiflora tilliaefolia Sessé & Moc. Pl. Nov. Hisp. 154. 1887.

Not *P. tilliaefolia* L.

Plant glabrous throughout; stem terete; stipules ovate-lanceolate or oblong-lanceolate, 1 to 2.5 cm. long, 0.8 to 1.2 cm. wide, acute or acuminate, narrowed at base, entire or serrulate; petioles 4 to 10 cm. long, bearing 4 to 6 scattered, liguliform or filiform glands 3 to 10 mm. long; leaves broadly ovate, 8 to 15 cm. long, 6 to 13 cm. wide, abruptly acuminate, deeply cordate, entire, penninerved, membranous; peduncles solitary or in pairs, 2 to 4 cm. long; bracts 2 to 3.5 cm. long, 1 to 1.5 cm. wide, connate one-fifth to one-third their length, the free parts ovate or ovate-lanceolate, acute, entire, glabrous, tomentose at margin within; flowers 6 to 9 cm. wide; calyx tube short-campanulate; sepals ovate-oblong, 2.5 to 3.5 cm. long, 1 to 1.5 cm. wide, acute, green without, white within; petals oblong, about 3 cm. long, 0.8 to 1 cm. wide, white or pinkish white; corona 5-7-ranked, the filaments of the 2 outer rows as long as the petals, radiate, terete, blue at apex, banded with white and reddish purple below, the inner rows closely approximate, the filaments barely 2 mm. long, dilated above middle; operculum membranous, slightly incurved, sharply denticulate, white, red-purple at margin; limen cupuliform, closely surrounding base of gynophore; ovary ovoid; fruit ovoid, 6 to 8 cm. long, 4 to 5 cm. in diameter, the pericarp yellowish or purplish, parchment-like, the pulp white, edible; seeds narrowly obcordate, about 6 mm. long, 4 mm. wide, apex minutely tridentate, middle tooth the largest, faces irregularly reticulate.

TYPE LOCALITY: Peru.

ILLUSTRATIONS: Ann. Mus. Nat. Hist. 6: *pl.* 40; Bot. Reg. 16: *pl.* 1339; Bot. Mag. 57: *pl.* 2967; Popenoe, Man. Trop. Fr. 246. *f.* 30; Contr. U. S. Nat. Herb. 24: *pl.* 43; Dess. Fl. Mex. 1: *pl.* 31; Mutis, Icon. Pl. Ined. 26: *pl.* 7.

DISTRIBUTION: Central Mexico to Venezuela, south-central Peru, and western Bolivia, between 1,000 and 3,000 meters altitude; often cultivated in Central America and western South America.

MEXICO: Veracruz: Orizaba, *Müller 3063* (Y).—Puebla: Atlixco, *Popenoe 853* (NA).—Michoacán: Morelia, *Arsène 3348* (N).—Colima: Manzanillo, *Stadden in 1911* (NA).—Oaxaca: *Galeotti 3668* (Brux, Gen, N, P).—Chiapas: Tumbala, *Nelson 3326* (G, N).

GUATEMALA: *Türckheim 1128* (B).—Alta Verapaz: Samac, *J. D. Smith 1627* (G, K, N).—Jalapa: Laguna de Ayarza, *Heyde & Lux (J. D. Smith 3965; G, K, N)*.—Sacatepéquez: San López del Cabo, *Popenoe 674* (N).

SALVADOR: San Salvador, *Calderón 551* (G, N). Volcán de San Salvador, *Standley 22856* (N).

COSTA RICA: Cerro de Piedra Blanca, above Escazú, *Standley 32642* (N). Santa María de Dota, *Standley 43130* (N). San José, *Oersted 4104* (Cop). Las Cóncevas, *Standley 35996* (N). Cartago, *Tonduz 10430* (N).

VENEZUELA: Federal District: Caracas, *Humboldt & Bonpland* (BW); *Bailey & Bailey 1154* (N).—Aragua: Colonia Tovar, *Karsten in 1849* (B, V); *Allart 466* (N).—Mérida: Mérida, *Moritz 1320* (B, V).

COLOMBIA: *Karsten* (V).—Norte de Santander: Culagá Valley, *Killip & Smith 20136* (A, G, N, Y). Pamplona, *Cortés* (Bog).—Santander: Suratá, *Killip & Smith 16511* (A, G, N, Y). La Baja, *Killip & Smith 17197* (A, G, N, Y). Charta, *Killip & Smith 19104* (N). Mesa de Los Santos, *Killip & Smith 15227* (A, G, N, Y).—Cundinamarca: *Lehmann 2518* (Bo). Bogotá, *Triana 2942* (BM, Brux, Gen, HNC, Y); *Goudot 3* (P); *Humboldt & Bonpland 1769* (B). Fusagasugá, *Popenoe 1094* (N, Y). La Florida, *Pérez 2567* (N).—Meta: Villavicencio, *Apollinaire Marie in 1928* (Bog, N).—Tolima: Quindío Trail, *Killip & Hazen 9577* (N), *9595* (N).—Huila: Balsillas, *Rusby & Pennell 735* (G, Mo, N, Y).—Caldas: San Clemente, *Pennell 10667* (N). Palmilla, *André 2059* (Y).—El Valle: Miraflores, east of Palmira, *Pennell & Killip 6116* (N, Y).—El Cauca: *Dryander 1075* (N). Popayán, *Killip 6401* (N); *Lehmann 5314* (K), *8018* (B). San Isidro, Mt. Puracé, *Pennell & Killip 6423* (N).

ECUADOR: *Sodi* 562b, in part (B). Pifo, *Mille* in 1898 (N).—Imbabura: Río Tahuana, *Mexia* 7416 (N).—Guayas: Guayaquil, *Rorer* 26 (N).—Pichincha: Mt. Corazón, *Lehmann* 4830 (B). Tam-billo, *Mille* 37 (N).—Tungurahua: Baños, *Mexia* 6980 (N).—Chimborazo: Huigra, *Rose* 23504 (G, N).

PERU: *Dombey* 739 (B, Gen, P, type); *Pavón* (BM). Carabaya, *Weddell* 4777 (P).—Lima: Botanical Garden, cultivated, *Killip & Smith* 21529 (N). Lima, *Rose* 18776 (N, Y).—Huánuco: Huánuco, *Ruiz & Pavón* (Ma). Cocho, *Poeppig* 1695 (V).—Junín: Huacapistana, *Killip & Smith* 24330 (N, Y). Tarma, cultivated, *Killip & Smith* 21947 (N).—Ayacucho: Aina, *Killip & Smith* 22681 (N, Y).—Cuzco: Torontoy, Urubamba Valley, *Cook & Gilbert* 814 (N).

BOLIVIA: *D'Orbigny* 452 (P).—La Paz, Larecacha, *Mandon* 608 (BM, Bo, Gen, K, P, S). Tipuani, *Buchtien* 5473 (Gen, N). Yanacachi, *Buchtien* 228 (N). Sirupaya, *Buchtien* 113 (Y). Coripata, *Buchtien* 8135 (N).—Santa Rosa: *Kuntze* in 1892 (N).

Passiflora ligularis is cultivated from Mexico to Peru and Bolivia and eastward to Venezuela. Its sweet pulp is used in many of these countries as an ingredient of cooling drinks and sherbets. Its flavor is generally considered superior to that of *P. laurifolia* or *P. maliformis*.

This species is most readily recognized in herbaria by the very long, slender petiolar glands. The leaves normally are entire, though in the Department of Antioquia, Colombia, a form is found with many of the leaves deeply 3-lobed.

LOCAL NAMES: "Granadilla" (Mexico to Peru); "granadilla de China" (Acapulco; Bogotá).

198a. *Passiflora ligularis* f. *lobata* Mast. Bot. Jahrb. 8: 219. 1887.

Many of the leaves deeply 3-lobed; otherwise as in typical form.

COLOMBIA: Antioquia: Roble, near Antioquia, 2,000 meters, *Lehmann XIII* (Bo, K, type, N). La Sierra, near Medellín, 2,000 meters, *Archer* 1498 (N).

199. *Passiflora Nelsoni* Mast. & Rose, Contr. U. S. Nat. Herb. 5: 142. pl. 17. 1897.

Plant essentially glabrous throughout; stem stout, terete, striate; stipules oblanceolate, 10 to 12 mm. long, 5 to 6 mm. wide, acuminate, tapering at base, deciduous; petioles 2 to 3 cm. long, bearing 2 pairs of sessile, saucer-shaped glands near apex; leaves broadly ovate, 9 to 12 cm. long, 8 to 9 cm. wide, entire, acuminate, rounded or subcordate

at base, penninerved (principal secondary nerves three or four pairs), entire, membranous; peduncles solitary, up to 3 cm. long; bracts broadly ovate, 5 to 6 cm. long, 3.5 to 4.5 cm. wide, acuminate, free nearly to base, glabrous except for a band, 3 to 4 mm. wide, of short tomentum at margin of inner surface; flowers 5 to 7 cm. wide; sepals oblong-lanceolate, 3 cm. long, 1 cm. wide, corniculate on outer surface just below apex; petals as long as and slightly narrower than the sepals; corona in several series, the outermost filaments subulate, 1 to 1.5 cm. long, enlarged at base, the succeeding 5 or 6 series 1 to 2 mm. long; operculum membranous at base, filamentose, the filaments erect, about 7 mm. long, the tips incurved; limen membranous, about 3 mm. high, adnate to gynophore; gynophore stout, 7 to 9 mm. high, swollen at base; ovary narrowly obovoid; fruit orbicular.

TYPE LOCALITY: Near Tumbala, Chiapas, Mexico.

ILLUSTRATION: Contr. U. S. Nat. Herb. 5: *pl.* 17.

DISTRIBUTION: Southern Mexico and northern Guatemala.

MEXICO: Tacoba, *Liebmann* (V).—Chiapas: Tumbala, 500 meters, *Nelson 3325* (N, type).

GUATEMALA: Alta Verapaz: Cobán, 1,325 meters, *Türckheim 687* (G, N). Tactic, 1,600 meters, *Türckheim II.2234* (Bo, Brux, Gen, N). Sepacuité, *Cook & Griggs 781* (N); *Owen 10* (N).

From *P. ligularis*, the only other species of this group found in Mexico and Guatemala, *P. Nelsoni* is at once distinguished by its sessile, saucer-shaped petiolar glands, much larger bracts, and long-filamentose operculum. The last feature likewise distinguishes the plants from South American species of this immediate relationship.

200. *Passiflora Seemannii* Griseb. Bonplandia 6: 7. 1858.

Passiflora incana Seemann ex Mast. Journ. Linn. Soc. 20: 40. 1883, as synonym. Not *P. incana* Ker.

Passiflora orbifolia Planch. & Linden, Ann. Sci. Nat. V. Bot. 17: 150. 1873.

Plant glabrous throughout; stem terete, striate, usually glaucous; stipules narrowly linear, 1 to 1.5 cm. long, serrulate toward apex; petioles 3 to 7 cm. long, bearing at apex 2 sessile glands about 1 mm. in diameter, and occasionally a second pair near middle; leaves cordate-ovate, 6 to 9 cm. long, 5 to 6 cm. wide (older leaves up to 13 cm. long, 15 cm. wide, occasionally 3- or unequally 2-lobed), abruptly acuminate or rounded at apex, mucronate, deeply cordate at base with the lobes usually much overlapping, minutely den-

ticulate or subentire, thin-membranous, glaucous or rarely green beneath; peduncles solitary, 6 to 10 cm. long; bracts white, purple-tinged, 2.5 to 4 cm. long, united a third to a half their length, the segments broadly lanceolate, acuminate; flowers 8 to 10 cm. wide, fragrant; calyx tube campanulate-funnel-shaped, about 2 cm. long; sepals ovate-lanceolate, 3.5 to 4 cm. long, 1.5 cm. wide, obtuse, corniculate, white, tinged with purple or violet; petals oblong-lanceolate, 3.3 to 3.5 cm. long, about 1.2 cm. wide, obtuse, purple; corona in 2 series, the outer filamentose, 1 to 1.2 cm. long, subreflexed, banded with violet or purple and white, the inner 2 to 2.5 cm. long, erect, the tips slightly recurved, the interior of the tube lined with tubercles not arranged in definite rows, doubtless rudimentary corona filaments; operculum membranous, suberect, about 2 mm. high, entire or finely denticulate; nectar ring annular, borne about halfway between operculum and base of gynophore; limen about 5 mm. high, erect, adnate to gynophore; ovary ovoid; fruit ovoid, 4 to 5 cm. long, 2.5 to 3.5 cm. in diameter; seeds orbicular-ovate, about 3 mm. long and wide, reticulate.

TYPE LOCALITY: Panama.

ILLUSTRATION: Mutis, *Icon. Pl. Ined.* 26: *pl.* 5.

DISTRIBUTION: Panama and northwestern Colombia; Eastern Cordillera of Colombia. Cultivated in Mexico, Nicaragua, and Hawaii. Usually at low elevations, but ascending to 1,600 meters in Colombia.

MEXICO: Chiapas: Huehuetán, *Nelson 3827* (N).

NICARAGUA: Eden, *Huber & Street 22* (Ph). Braggmans Bluff, *Englesing 118* (N).

PANAMA: Bocas del Toro: Río Changuinola, *Dunlap 422* (G, Ph).—Canal Zone: *Hayes* in 1862 (BM); *Fendler 120* (B, G, K, N); *Maxon 4765* (N); *Pittier 2195* (N), *2515* (N); *Standley 25819* (N), *27291* (N), *27623* (N), *28684* (N), *29566* (N), *29993* (N), *30286* (N); *Piper 5842* (N); *Cowell 59* (Y); *Crawford 419* (Ph), *485* (Ph); *Greenman & Greenman 221* (Mo); *Stevens 1153* (N); *Heriberto 53* (N); *Samuels 239* (N).—Panama: Tapia River, *Maxon 6730* (N); *Standley 28179* (N); *Killip 3297* (Roch). Juan Díaz, *Standley 30634* (N, S).

COLOMBIA: Santander: Between Nariño and El Tambor, 200 meters, *Killip & Smith 14969* (G, N, Y). Bucaramanga, 1,000 meters, *Killip & Smith 19342* (A, G, N, Y).—Boyacá: *Dawe 920* (K).—Cundinamarca: Quetamé, 1,600 meters, *André 1070* (K).—Meta:

Villavicencio, *Nicéforo* in 1927 (Bog); *Apollinaire Marie* in 1928 (Bog).—Antioquia: Boca Regla, Río Magdalena, 125 meters, *Pennell 10991* (A, G, N, Y).

This species is common in Panama at low elevations, but apparently rare in regions to the north and south. Usually the leaves are entire, but plants with some of the lower leaves 3-lobed are occasionally found.

201. *Passiflora triloba* R. & P. ex DC. Prodr. 3: 330. 1828.

Passiflora colubrina Poepp. & Endl. Nov. Gen. Pl. 2: 58. 1835.

Cieca colubrina M. Roemer, Fam. Nat. Syn. 2: 143. 1846.

Plant glabrous nearly throughout; stem terete, stout; stipules ovate-lanceolate, 2 to 3 cm. long, 1.5 to 2.5 cm. wide, acute or abruptly acuminate, cordate at base, minutely serrulate-denticulate; petioles up to 10 cm. long, biglandular at apex, the glands saucer-shaped, 2 to 2.5 mm. long, stipitate; leaves 10 to 15 cm. long, 10 to 18 cm. wide, cordate-ovate or usually 3-lobed to about middle (lobes ovate or oblong-ovate, up to 7 cm. wide, subequal, obtuse), deeply cordate at base (basal lobes usually overlapping), minutely denticulate, thick-membranous, often lustrous above, glaucescent beneath; peduncles up to 5 cm. long; bracts ovate, 4.5 to 7 cm. long, 3 to 5.5 cm. wide, rounded or acutish at apex, glandular-serrulate, free, united at very base only, glabrous except for a band of gray tomentum on inside near margin; flowers up to 10 cm. wide; calyx tube campanulate; sepals oblong-lanceolate, 1 to 1.5 cm. wide, obtuse, ecoriunculate, green without, densely spotted with deep purple within; petals oblong-lanceolate, 2.5 to 3 cm. long, 1 to 1.2 cm. wide, obtuse, purplish; corona 3-ranked, the 2 outer ranks filamentose, the filaments banded with purple and white in lower half, with blue and white in upper half, the outer filaments subulate, 1 to 1.5 cm. long, the inner ligulate, 2.5 to 3 cm. long, these followed by an erect, purple membrane about 2 mm. high, minutely denticulate; operculum membranous, horizontally spreading inward, minutely crenulate at margin; limen erect, adnate to gynophore; ovary ovoid.

TYPE LOCALITY: Peru.

ILLUSTRATION: Ill. Hort. 36: *pl. 83*. 1889.

DISTRIBUTION: Peru and Bolivia, up to 1,000 meters altitude.

PERU: *Pavón* (B, BM, Bo, Gen, type, Ma, P).—San Martín: Tarapoto, *Spruce 4052* (BM, Brux, K, V).—Loreto: Yurimaguas, *Killip & Smith 27664* (F, N, Y), *27834* (F, N, Y), *28716* (F, N, Y);

L. Williams 4980 (N); *Poeppig* 2171 (V, type of *P. colubrina*). Río Ucayali, *Tessmann* 3155 (B).—Junín: San Ramón, cultivated, *Killip & Smith* 24092 (F, N, Y).

BOLIVIA: Beni: Junction of Beni and Madre de Dios rivers, *Rusby* 490 (B, BM, Bo, G, K, N, Ph, Y). Bopi River, *Mulford Biol. Expl.* 739 (Y).—La Paz: Mapiri, *Buchtien* 1676 (N). Coroico, *Buchtien* 3851 (N).—Santa Cruz: Santa Cruz, *Herzog* 1507 (B, S). Río Surutú, *Steinbach* 7220 (BM, G, Gen, Ph, S, Ut).

The leaves of *P. triloba* are usually 3-lobed, minutely serrulate-denticulate, and generally larger than in its near relatives. The species is sometimes confused with *P. ligularis* and *P. tiliaefolia*. A discussion of the differences between these three species will be found under *P. tiliaefolia*.

202. *Passiflora tiliaefolia* L. Sp. Pl. 956. 1753.

Plant glabrous throughout; stem terete; stipules ovate-lanceolate to oblong-lanceolate, 1 to 2 cm. long, 0.5 to 1.5 cm. wide, or the upper linear-lanceolate and barely 2 mm. wide, acute or acuminate, oblique at base, entire or serrulate, green, often turning reddish in drying; petioles 2.5 to 7 cm. long, 2-4-glandular, the glands saucer-shaped, all borne at apex or 1 pair near middle, subsessile or short-stipitate, 1 to 2 mm. wide; leaves cordate-ovate, 10 to 25 cm. long, 8 to 18 cm. wide, abruptly acuminate, shallowly or deeply cordate at base (basal lobes not overlapping), entire, membranous, often lustrous on both surfaces; peduncles 2 to 3 cm. long; bracts ovate, about 2 cm. long, 1.5 cm. wide (perhaps larger), obtuse or acute at apex, united one-fifth to one-third their length, reddish when dry, glabrous except for a narrow band of tomentum along the margin within; flowers about 8 cm. wide; sepals oblong, 5 to 7 mm. wide, obtuse, concave, slightly carinate on outside, the keel terminating in a slender awn; petals oblong, subequal to sepals; corona about 5-ranked, the two outer rows of filaments terete, about half as long as petals, the three inner rows barely 3 mm. long; operculum membranous, incurved, entire at margin; limen adnate to gynophore; ovary ovoid; fruit ovoid, about 6 cm. in diameter, "deep violet to blackish proximally, greenish distally."

TYPE LOCALITY: Lima, Peru.

ILLUSTRATIONS: Journ. Obs. Phys. Math. Bot. Peruv. 2: *pl.* 121. 1714; Amoen. Acad. 1: *pl.* 10, *f.* 4; Cav. Diss. 10: *pl.* 285; G. Don, Hist. Dichl. Pl. 3: 51. *f.* 4; Mutis, Icon. Pl. Ined. 26: *pl.* 6.

DISTRIBUTION: Mountains of Colombia and Peru, 1,500 to 2,500 meters altitude.

COLOMBIA: *Mutis* 794 (Ma, N), 2219 (Ma, N), 2275 (Ma, N), 2890 (Ma, N).—Tolima: Above Ibagué, *Killip & Hazen* 9625 (G, Ma, Ph, Y).—Antioquia: Medellín, *Toro* 214 (Y).—Caldas: Salento, *Killip & Hazen* 9027 (B, G, N, Ph, Y), 9078 (N). *Pereira, Killip & Hazen* 11006 (N).—El Valle: La Cumbre, *Killip* 5697 (N).—El Cauca: Cuatro Esquinas, *Pennell & Killip* 6350 (N).

PERU: *Pavón* (B, BM, Gen, Ma).

The exact identity of *P. tiliaefolia* is by no means clear. Apparently both Linnaeus and Cavanilles knew the plant only from the description and figure given by Feuillée. This description in general would apply almost equally well to either *P. ligularis*, entire-leaved forms of *P. triloba*, or the specimens cited above.

The differences between these three species may be summarized thus:

<i>P. ligularis</i>	<i>P. triloba</i>	<i>P. tiliaefolia</i>
Stipules ovate-lanceolate or oblong-lanceolate.	Stipules ovate-lanceolate.	Stipules ovate-lanceolate or oblong-lanceolate, or the upper narrowly linear-lanceolate. ¹
Petiole glands filiform or narrowly liguliform, 3 mm. long or more.	Glands saucer-shaped, stipitate, less than 3 mm. long.	Glands saucer-shaped, subsessile or short-stipitate, less than 3 mm. long.
Leaves usually not lobed, entire at margin. Basal lobes not overlapping.	Leaves usually 3-lobed, minutely denticulate. Basal lobes overlapping.	Leaves never (or rarely?) lobed, entire at margin. Basal lobes overlapping.
Bracts less than 4 cm. long, united one-fifth to one-third.	Bracts more than 4 cm. long, free or united only at very base.	Bracts less than 4 cm. long, united one-fifth to one-half.
Corolla 5-ranked, the 2 outer ranks subequal to petals, the 3 inner ranks much shorter.	Corolla 3-ranked, the outermost rank half as long as petals, the second rank minutely denticulate.	Corolla 5-ranked, the 2 outer ranks about half as long as petals, the 3 inner ranks much shorter.
Operculum denticulate.	Operculum crenulate.	Operculum entire.

Plate 12 is lacking from the copy of Feuillée's work which I consulted; I assume that Cavanilles' illustration and the figure of a leaf in the *Amoenitates* are substantially accurate reproductions. In both of

¹ In the *Pavón* plant of *P. tiliaefolia* in the British Museum the lower stipules are ovate-lanceolate, about 3 cm. long, 1.5 cm. wide, the upper linear-lanceolate, 1 cm. long, 0.4 cm. wide. The specimen of this same collection at Berlin has linear-lanceolate stipules, 2 cm. long, 0.2 cm. wide. In the Colombian material the stipules are uniformly ovate-lanceolate.

these the petioles are shown as glandless. No Andean granadillas with linden-shaped leaves and *glandless* petioles are known. A collection of Pavón's, from Peru, and the Colombian material cited above come nearest to agreeing with the illustrations of *P. tiliaefolia*. The Pavón specimen and one of the Colombian specimens have two pairs of saucer-shaped glands at the very apex of the petiole, scarcely visible from a top view of the leaf. They are not conspicuous and might well have been ignored by Feuillée in preparing his description and drawing. This supposition is far more reasonable than that he would have neglected to mention the long, conspicuous glands of *P. ligularis*, had a specimen of that species been the original of his *P. tiliaefolia*.

Passiflora triloba is another species to which the description of *P. tiliaefolia* might apply. However, in *P. triloba* the leaves are generally 3-lobed, and minutely denticulate, and the bracts usually are very large.

Unfortunately, none of the specimens which I take to be *P. tiliaefolia* is in good flower. Killip & Hazen 9625 is in bud, and from this and Cavanilles' figure the description of the flower, given above, has been derived.

LOCAL NAME for *P. tiliaefolia*: "Machimbi" (Colombia).

203. *Passiflora maliformis* L. Sp. Pl. 956. 1753.

Passiflora ornata HBK. Nov. Gen. & Sp. 2: 129. 1817.

Passiflora maliformis var. *pubescens* Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 149. 1873.

Plant glabrous or finely pilosulous; stem terete or the younger parts subangular; stipules narrowly linear or lance-linear, 9 to 15 mm. long, 1 to 2 mm. wide, entire or minutely serrulate; petioles 1.5 to 5 cm. long, biglandular just above, or usually below, middle, the glands up to 1.5 mm. wide, subsessile; leaves ovate, ovate-lanceolate, or sometimes orbicular-ovate, 6 to 12 cm. long, 4 to 10 cm. wide (extreme forms up to 25 cm. long, 15 cm. wide), acute or abruptly acuminate at apex, rounded, truncate, or cordulate at base, undulate or finely serrulate, membranous; peduncles up to 5 cm. long; bracts broadly ovate, 4 to 6 cm. long, 3.5 to 4.5 cm. wide, united for about 1 cm. from base, thin-membranous, completely enveloping the bud, lime-green; calyx tube campanulate, 1 cm. long, 1.2 cm. wide at throat; sepals oblong or oblong-lanceolate, about 4 cm. long and 1.5 cm. wide, cucullate at apex, carinate (keel terminating in an awn about 5 mm. long), fleshy, green; petals linear-lanceolate, about

3 cm. long and 5 mm. wide, green, densely mottled with dark red-purple within; corona in several ranks, the 2 outer rows of filaments white, banded with Chinese-violet above middle and with rosolane-purple near base, the outermost terete, 1.5 cm. long, the second ligulate, 3 cm. long, the succeeding ranks consisting of minute tubercles, green tipped with deep purple; operculum membranous, horizontal, pale green, the margin recurved, denticulate; nectar ring horizontal, margin entire; operculum cupuliform, 6 mm. high; ovary oblong or subglobose, glabrous; fruit globose, 3.5 to 4 cm. in diameter, green or orange-green, pericarp very hard; seeds oblong-obcordate, 5 to 6 mm. long, about 4 mm. wide, finely reticulate, metallic-gray.

TYPE LOCALITY: "Dominica" (Hispaniola).

ILLUSTRATIONS: Mutis, Icon. Pl. Ined. 26: *pl.* 8; Amoen. Acad. 1: *pl.* 10, *f.* 5; Plum. Pl. Amer. *pl.* 82; Jacq. Hort. Schönbr. 2: *pl.* 180; Andr. Bot. Repos. 4: *pl.* 217; Lawrance, Passion Fl. *pl.* 16; Bot. Reg. 2: *pl.* 94; Kerner, Hort. Sempervir. *pl.* 845.

DISTRIBUTION: West Indies, Venezuela, Colombia, and northern Ecuador; tropical zone, up to 1,700 meters altitude.

CUBA: Oriente: *Wright* 199 (Bo, Brux, G, Gen). Baracoa, *León* 11922 (HS). Guantánamo, *Hioram* 4257 (HS). Sierra del Cobre, *Ekman* 7844 (S).

HAITI: Tortue Island, *Leonard & Leonard* 11610 (N), 12441 (N), 14005 (N), 15591 (N); *Ekman* H9796 (N), Port au Prince, *Ekman* 2203 (B, S). Pétiönville, *Leonard* 4979 (N, Y). Port à Piment, *Ekman* H701 (S).

DOMINICAN REPUBLIC: *Duchemin* (P); *Poiteau* in 1802 (Gen). Barahona, *Fuertes* 445 (Cop, F, G, Gen, Minn, N, P, S). Las Cañitas, *Abbott* 2719 (N). Jovero, *Abbott* 2669 (N), 2836 (N). La Romana, *Ekman* H12075 (N). Jicomé, *Valeur* 627 (Gen, N).

JAMAICA: Mandeville, *Crawford* 802 (CM, Ph). Balaclava, *Harris* 9430 (J).

PUERTO RICO: Bayamón, *Sintenis* 1166 (B, G, N, S). San Andrés, *Sintenis* 6560 (B, Bo, Cop, F, G, Gen, HV, N, P, S, V). Catano, *Britton, Britton & Brown* 6973 (Y).

ST. THOMAS: *Riédle* (P); *Friedrichsthal* 399 (V).

GUADELOUPE: *Duss* 599 (P), 2229 (N); *Duchassaing* (B); *Fairchild* 3769 (N).

MARTINIQUE: *Plée* (P); *Richard* (P); *Bélanger* 631 (P); *Duss* 879, in part (N).

VENEZUELA: Bolívar, Ciudad Bolívar, *Moritz* 534 (B).—Carabobo: Puerto Cabello, *Pittier* 8870 (G, N), 8875 (B, G, N).

COLOMBIA: *Lehmann* B.T.1163 (Y).—Santander: *Kalbrejer* 861 (B). Between Nariño and El Tambor, *Killip & Smith* 14958 (G, N). Bucaramanga, *Killip & Smith* 15453 (A, G, N, Y).—Cundinamarca: Guataquí, *Pérez* 392 (N). Melgar, *Goudot* (P). Tocaima, *Lehmann* 6096 (B). Guaduas, *Popenoe* 1124 (N, Y); *Holton* in 1852 (Y). La Mesa, *Triana* (HNC).—Tolima: Between Ibagué and Cuesta de Tolima, *Humboldt & Bonpland* 1804 (B, type of *P. ornata*). Mariquita, *Triana* 2936 (Gen, P). Ibagué, *Goudot* (P). Honda, *Linden* 1185 (Bo, Gen, P).—Antioquia: Santa Bárbara, *Pennell* 10882 (N). Medellín, *Toro* 233 (Y).—Caldas: Río Quindío above Armenia, *Pennell, Killip & Hazen* 8671 (G, N, Ph, Y). Calarcá, *Killip* 9797 (G, N, Ph, Y). Pereira, *Pennell* 10167 (G, N, Ph, Y); *Killip & Hazen* 11007 (N). San José, *Pennell* 10223 (N).—El Valle: La Cumbre, *Pennell & Killip* 5411 (G, N, Ph, Y). Espinal, *Killip & Hazen* 11078 (G, N, Ph, Y). Cali, *Lehmann* 3384 (Bo, N), 4831 (B). Pavas, *Lehmann* 786 (Bo, N). La Paila, *Holton* 701 (Y). Cauca Valley, *Dryander* 84 (B).—El Cauca: Popayán, *Hartweg* 1020 (B, Bo, Gen, P, V, Y). Palacé, *Lehmann* B.T.409 (Y).

ECUADOR: Imbabura: Ambuquí, *Popenoe* 1348 (N).

Passiflora maliformis is frequently cultivated in the West Indies and, to a lesser extent, in the northern countries of South America. The shell of the fruit is sometimes so hard that it must be broken with a hammer. The pulp has a grapelike flavor, and is used in making cooling drinks.

Two forms may be recognized among the specimens here cited. The commoner form in the West Indies is glabrous and has proportionately longer leaves, with undulating margins. In South America the commoner form is more or less pubescent, and the leaves are more nearly orbicular and distinctly serrulate. No differences in the flowers or fruit are discernible.

LOCAL NAMES: "Sweet calabash," "sweet cup" (West Indies); "conch apple" (Bahamas); "ceibey cimarrón," "granadilla de mono," "guerito" (Cuba); "calobassie" (Haiti); "calabiso de los Indios" (Dominican Republic); "pomme calabas" (Guadeloupe); "parcha cimarrona" (Puerto Rico); "culupa," "curubá" (Colombia); "granadilla de hueso" (Ecuador).

204. *Passiflora Williamsii* Killip, Journ. Wash. Acad. Sci. 12: 262. 1922.

Stem stout, terete, densely puberulent; stipules filiform, 6 to 7 mm. long; petioles 4.5 cm. long, densely puberulent, biglandular about 1 cm. from base, the glands orbicular, appressed, 2 mm. in diameter; leaves 3-lobed to middle, up to 10 cm. along midnerve, 9 cm. along lateral nerves, 10 cm. between apices of lateral lobes (lobes acuminate, the middle lobe narrowed at base), serrulate, biglandular in the sinuses between lobes, truncate or cordate at base, 3-nerved, membranous, above glabrate, puberulent on the nerves, beneath minutely puberulent; peduncles about 3 cm. long, densely pubescent; bracts united at base, the free part 2 cm. long, 1.5 cm. wide, tomentulose on both surfaces; flowers about 6 cm. wide; calyx tube 1.2 cm. long; sepals oblong, 2.5 to 3.5 cm. long, 1.2 to 1.5 cm. wide, obtuse, puberulent without, glabrate within, inconspicuously keeled, dorsally awned about 2 mm. below apex, the awn 3 mm. long; petals oblong-spatulate, 2 cm. long, 5 mm. wide, greenish without, white within, spotted with dark pink; corona filaments in several series, the outermost terete, 6 to 7 mm. long, white, transversely banded with blue, those of the next series dilated at middle, 2 to 2.5 cm. long, the succeeding series minute, tuberculate, 1.5 mm. long; operculum arising close to the corona, membranous, horizontally spreading inward, 2 mm. long, entire; nectar ring annular, midway between operculum and base of gynophore; limen fleshy, closely surrounding and adnate to lower part of gynophore, 5 mm. high, the margin free, erect; ovary narrowly ovoid, densely white-tomentose.

TYPE LOCALITY: Bismarck, above Penonomé, Panama.

DISTRIBUTION: Panama.

PANAMA: Coclé: Bismarck, above Penonomé, 600 to 925 meters, *R. S. Williams* 585 (Y, type).—Canal Zone: Between Empire and Mandinga, *Piper* 5481 (N).—Panama: Las Sabanas, *Paul* 308 (N).

This species is at once separated from near relatives by the densely white-tomentose ovary. In the type specimen the leaves are truncate at the base, but in the other specimens they are rather deeply cordate.

205. *Passiflora platyloba* Killip, Journ. Wash. Acad. Sci. 12: 260. 1922.

Plant glabrous throughout, except the bracts; stem stout, terete, striate, glabrous; stipules coriaceous, narrowly linear, 1 to 1.2 cm. long, strongly 3-nerved, remotely and finely serrulate, orange-yellow,

deciduous; petioles 6 to 7 cm. long, glabrous, bearing about 2 cm. above base 2 sessile, flattened glands 2 mm. wide; leaves 10 to 14 cm. long, 12 to 18 cm. wide, 3-lobed to middle (middle lobe broadly ovate, abruptly acuminate, mucronate, 7 to 9 cm. long, 4 to 8 cm. wide, the lateral lobes nearly equal to middle lobe), deeply cordate, finely serrulate, biglandular in the sinuses, 3—5-nerved, membranous, glabrous; peduncles solitary, 6 to 7 cm. long; bracts ovate, entire, 5 to 7 cm. long, 3 to 5 cm. wide, membranous, attached 1 cm. below apex of petiole, completely enveloping the flower, united for about 2 cm., acute or obtuse, apiculate, densely puberulent on both surfaces; flowers purple, 4 to 5 cm. wide; calyx tube campanulate, about 1 cm. long; sepals oblong-lanceolate, 1.8 to 2 cm. long, 8 mm. wide, slightly fleshy, obtuse, strongly keeled, the keel terminating in a setaceous awn 5 to 6 mm. long; petals linear-lanceolate, 1.5 to 1.7 cm. long, 5 mm. wide, thin, obtuse; corona in several series, the outermost filaments slender, filiform, about 7 mm. long, those of the second series stout, liguliform, attenuate at apex, 1.5 cm. long, white, banded with purple, the succeeding series of about 6 irregular rows of minute tubercles less than 1 mm. long; operculum arising at base of the innermost rank of the corona, 0.75 mm. long, the margin erect, denticulate; nectar ring annular, midway between the preceding and base of gynophore, the margin entire; limen fleshy, closely surrounding and adnate to the lower part of gynophore, 3 mm. high, the margin free, erect; gynophore glabrous, bearing near the base a single annular process 0.4 mm. wide; ovary ellipsoidal, glabrous; the fruit 3 to 3.5 cm. in diameter, the pericarp hard.

TYPE LOCALITY: La Balsa del Río Grande, Province of Alajuela, Costa Rica.

DISTRIBUTION: Guatemala to Costa Rica, at low elevations.

GUATEMALA: Chiquimula, *Lehmann 1709* (B, Bo).

SALVADOR: Tonacatepeque, *Standley 19487* (G, N, Y). San Martín, *Calderón 705* (G, N, Y).

NICARAGUA: Granada, *Oersted 4137* (Cop).

COSTA RICA: Balsa del Río Grande, Alajuela, *Pittier 3653* (N, type). El Coyolar, Alajuela, *Standley 40050* (N). Tilarán, Guanacaste, *Brenes 12704* (F).

Lehmann 1709 was cited (Bot. Jahrb. 8: 219. 1887) by Masters as *P. velata*, a South American species now known to be identical with

P. serrulata. From that *P. platyloba* is readily distinguished by its deeply cordate leaves and the very broad middle leaf lobe.

The fruit is said to be very acid.

LOCAL NAMES: "Granadilla," "granadilla montés" (Salvador).

206. *Passiflora serrulata* Jacq. Obs. Bot. 2: 26. pl. 46, f. 2. 1767.

Passiflora velata Mast. in Mart. Fl. Bras. 13, pt. 1: 560. 1872.

Passiflora nitens J. R. Johnston, Proc. Amer. Acad. 40: 692. 1905.

Stem terete (or the younger parts angulate), glabrous; stipules narrowly linear-oblong or linear-lanceolate, 3 to 6 mm. long, 1.5 mm. wide, dentate or denticulate in upper half, coriaceous; petioles 1 to 3 cm. long, biglandular at or below middle, occasionally with a second pair of glands above middle, the glands sessile; leaves polymorphic, ovate, 6 to 12 cm. long, 5 to 11 cm. wide, 3-lobed (middle lobe ovate or ovate-lanceolate, acuminate or rarely rounded at apex, 2 or 3 times longer than lateral lobes), or unilaterally 1-lobed, truncate or shallowly cordate at base, finely denticulate, membranous or coriaceous, glabrous above, glabrous, pilosulous, or white-tomentose beneath; peduncles 2 to 3 cm. long; bracts obovate, 2 to 5 cm. long, 1.5 to 3 cm. wide, densely tomentellous at margin, united below for 4 or 5 mm. or at length free to base; flowers 5 to 6 cm. wide, fragrant; calyx tube campanulate; sepals lanceolate, 1.5 to 2 cm. long, 8 to 9 mm. wide, obtuse, white; petals linear-lanceolate, 1.2 to 1.8 cm. long, 2.5 to 3 mm. wide, white; corona in several series, the filaments of the outer 2 series linear, 1.5 to 2 cm. long, white at base, purple-banded above, the next 2 or 3 series tuberculate, barely 0.3 mm. long, the innermost series 0.8 to 1 mm. long; operculum membranous, crenulate or slightly filamentose; nectar ring annular; limen cupuliform, 2 to 3 mm. high, entire; ovary ovoid, glabrous; fruit globose, about 2.5 cm. in diameter, the pericarp coriaceous, yellowish; seeds oblong-obcordate, about 5 mm. long and 3 mm. wide, finely reticulate.

TYPE LOCALITY: Near Cartagena, Colombia.

ILLUSTRATION: Jacq. Obs. Bot. 2: pl. 46, f. 2.

DISTRIBUTION: Trinidad and coast of Venezuela, and northern Colombia.

TRINIDAD and TOBAGO: Patos Island, Britton, Hazen & Mendelson 524 (G, K, N, T, Y); Broadway 2657 (B, F, Gen, N, Y), 7199 (N). Chacachacare, Britton, Freeman & Watts 2679 (G, N, Y);

Trinidad Herb. 10390 (T), 12012 (K, T). Monos Island, Britton, Britton & Brown 2747 (N, T, Y).

VENEZUELA: *Warming* 363 (Cop). La Mocca, *Eggers* 13530 (Cop). El Valle, *J. R. Johnston* 65 (B, G, type of *P. nitens*).—Sucre: Cumaná, *Humboldt & Bonpland* 1093 (B).—Federal District: La Guaira, *Moritz* 438 (B, BM). Puerto La Cruz, *Pittier* 11655 (N).—Aragua: Colonia Tovar, *Fendler* 2329 (K, type of *P. velata*).—Zulia: Maracaibo, *Moritz* 1318 (B, BM, K).

COLOMBIA: Atlántico: Puerto Colombia, *Elias* 1258 (F, N).—Bolívar: Cartagena, *Jacquin* (BM, fragment of type).

The exact identity of *P. serrulata* Jacq. was long in doubt, Masters omitting the name altogether from his monograph. Urban has published a redescription of the species, based on *Broadway* 2657, from Trinidad, and *Moritz* 438, from Venezuela, which clearly are conspecific with Jacquin's plant.

Passiflora velata and *P. nitens* apparently differ from typical *P. serrulata* only in the indument of the under surface of the leaves. In the type specimen of *P. nitens* the sinus between the lobes is rather broader than in most of the other specimens examined.

207. ***Passiflora multiformis*** Jacq. *Fragm.* 50. *pl.* 67, *f.* 1. 1809; *Eclog.* 2: 4. *pl.* 121. 1844.

Passiflora caracasana Willd. *Enum.* Pl. 697. 1809.

Passiflora physocalymma Blake, *Contr. Gray Herb.* n. ser. 53: 44. 1918.

Stem terete, pilosulous with very short hairs, or glabrous; stipules linear, up to 2 cm. long, 1.5 mm. wide, glandular-3-dentate on one side; petioles up to 4 cm. long, biglandular at or below middle, the glands minute, sessile; leaves entire (ovate or broadly ovate) or 3-lobed (lobes acuminate, up to 4.5 cm. wide), 6.5 to 10 cm. long, 4.5 to 10 cm. wide, finely serrulate, cordate or subtruncate at base, pilosulous on nerves above, pilose on nerves beneath, otherwise glabrous, lustrous above; peduncles up to 4 cm. long; bracts ovate, up to 6.5 cm. long, 3 cm. wide, entire, united for about 1 cm. above base, abruptly long-acuminate (acumen 1 cm. long, entire); flowers up to 5 cm. wide; sepals lanceolate, about 3 cm. long, keeled and awned, greenish white, purple-maculate within at base; petals lanceolate-oblong, 2.5 cm. long, 5 mm. wide, obtuse, purple-maculate; corona in several series, the outermost filaments liguliform, up to 1.3 cm. long, rose, banded with white in lower third, blue, banded with white above, those of the second series terete, up to 3 cm. long,

attenuate at apex, the succeeding series tuberculate; operculum membranous, erect, denticulate; limen annular; the ovary elliptic-obovoid, glabrous.

TYPE LOCALITY: Caracas, Venezuela.

ILLUSTRATIONS: Jacq. *Fragm. pl.* 67, f. 1; *Eclog. Pl.* 2: *pl.* 121.

DISTRIBUTION: Probably confined to the Federal District, north-central Venezuela.

VENEZUELA: Federal District: Between La Guaira and Río Grande, *Curran & Haman 1035* (G, type of *P. physocalymma*, N). Caracas, collector? (BW, type of *P. caracasana*); *Jacquin* (Gen, V, type); *Ernst 1186* (BM).

Though closely related to *P. serrulata*, this species seems sufficiently distinct to justify recognition. The lateral leaf lobes are proportionately longer and the bracts are long-tapering at the apex.

Series ⁴~~3~~. *Marginatae*

208. *Passiflora marginata* Mast. in Mart. Fl. Bras. 13, pt. 1: 603. 1872.

Passiflora Uleana Dusén, Archiv. Mus. Nac. Rio de Janeiro 13: 50. 1905.

Passiflora Uleana f. *ovalifolia* Dusén, Arkiv Bot. 8, No. 7: 5. 1909.

Plant glabrous throughout; stem very slender, almost filiform, terete; stipules setaceous, 3 to 5 mm. long; petioles 5 to 10 mm. long, terete, glandless; leaves lanceolate, 3.5 to 5 cm. long, 1.5 to 2.3 cm. wide, acute at apex, rounded (or slightly emarginate) and subpeltate at base, 1-nerved (principal lateral nerves about 10 pairs), entire, thick-coriaceous, cartilaginous-thickened at margin; peduncles solitary, 1 to 2 cm. long, slender; bracts cordate-lanceolate, 5 to 7 mm. long, 4 to 5 mm. wide, acute, mucronulate, serrulate at base, 1-nerved, strongly reticulate-veined, borne about 1 mm. below base of flower; flowers 1 to 3 cm. wide; calyx tube broadly campanulate; sepals oblong, about 6 mm. long, 2 mm. wide, obtuse, corniculate just below apex, green without, white within; petals slightly smaller than sepals, white; corona filamentose, the filaments slightly shorter than the sepals; ovary subglobose.

TYPE LOCALITY: Brazil, "in silvulis c. 2200 m.," Serra do Itatiaia. Type collected by Ule.

ILLUSTRATION: Arkiv Bot. 8, No. 7: 6.

DISTRIBUTION: Probably confined to the Itatiaia region, in east-central Brazil.

BRAZIL: *Sello 2126* (B, type); *Weddell 797* (Gen).—Minas Geraes: Serra do Mar, *Brade 391* (B). Itacolumy, *Ule 3795* (B).

This species is without close affinities, and its correct position in a systematic treatment is not readily determinable. The small though foliaceous bracts, situated at a short distance from the base of the flower, suggest relationship with *P. cyanea* and its allies. The shape of the leaves and the small, deciduous stipules bring it near the general group of *P. laurifolia*.

Passiflora Uleana apparently is a small-flowered form of *P. marginata*. Although I have not seen the type, from the Serra do Itatiaia, Dusén's sketch bears a close resemblance to the type specimen of *P. marginata*. The characters mentioned by Dusén as distinguishing *P. Uleana* from *P. marginata*, namely subpeltate, mucronate leaves and subcordate bracts, must be disregarded, for *P. marginata* has leaves and bracts of this nature. Dusén states that the flowers of *P. Uleana* are scarcely 1 cm. in diameter; the flowers of *P. marginata* are about 3 cm. wide.

Series 5. *Laurifoliae*

209. *Passiflora capparidifolia* Killip, Journ. Wash. Acad. Sci. 14: 113. 1924.

Plant glabrous throughout, except bracts and ovary; stem terete or nearly triangular above; stipules narrowly linear, 6 to 7 mm. long, 0.5 mm. wide, acute, subcoriaceous; petioles up to 8 mm. long, biglandular at apex, the glands sessile; leaves narrowly oblong, 8 to 10 cm. long, 2.5 to 3 cm. wide, rounded and mucronulate at apex, rounded or subcuneate at base, 1-nerved, reticulate-veined, thickcoriaceous, lustrous; peduncles about 3 cm. long, very slender; bracts ovate, to 3.5 cm. long, 2 cm. wide, obtuse, slightly narrowed at base, glandular toward apex, about 7-nerved, glabrous and sublustrous without, finely puberulent within; flowers 8 to 10 cm. wide; sepals lanceolate, about 4 cm. long, 1 cm. wide, obtuse, slightly keeled toward apex (keel terminating in an awn 2 mm. long), subcoriaceous; petals linear-oblong, 2.5 to 3 cm. long, 1.5 cm. wide, obtuse, white(?), conspicuously nerved, thin-membranous; corona filaments in several series, the outermost filiform, 1.5 to 2 cm. long, those of the second series compressed, 3.5 to 4 cm. long, 1.5 to 2 mm. wide, attenuate, white, banded with violet, the succeeding series composed of tubercles or of minute threads barely 0.5 mm. long;

operculum membranous, the margin entire, incurved; limen cupuliform, closely surrounding base of gynophore; ovary ellipsoidal, finely white-sericeous.

TYPE LOCALITY: Tumatumari, British Guiana.

DISTRIBUTION: British Guiana and northernmost Brazil.

BRITISH GUIANA: Tumatumari, Potaro River, *Gleason 328* (BM, G, K, N, type, Y). Rupununi River, *Jenman 5537* (K). Corentyne River, *Jenman 460* (BG, K); *Im Thurn* (K).

BRAZIL: Amazonas: Rio Branco, *Ule 7851* (B, Gen, Go, K, N).

This is allied to *P. laurifolia* but the leaves are much narrower, and the corona filaments more slender. Intermediates between the two occur, however, and this may prove to be merely a variant of *P. laurifolia*.

210. ***Passiflora Popenovii*** Killip, Journ. Wash. Acad. Sci. 12: 332. 1922.

Plant glabrous throughout, except the ovary and the outer surface of the calyx tube; stem terete below, 4-5-angled above, striate; stipules narrowly linear-subulate, 1 cm. long, 0.5 mm. wide, deciduous; petioles slender, averaging 2 cm. in length, slightly tortuose toward base, glandless rarely with a scarlike gland near base; leaves oblong-ovate or elliptic-ovate, 8.5 to 16 cm. long, 4 to 10 cm. wide, acuminate, rounded at base, entire, lustrous on both surfaces, penninerved (lateral nerves 4 or 5 pairs) and prominulous-reticulate, subcoriaceous, rarely coriaceous; peduncles slender, elongate, 8 to 10 cm. long; bracts ovate, concave, 2 to 2.5 cm. long, 1.2 to 1.5 cm. wide, rounded and often cleft at apex, narrowed at base, entire, minutely puberulent on the lower part of the outer surface; flowers showy, fragrant, up to 10 cm. wide; calyx tube 1.2 cm. long; sepals deep rose-colored, oblong, 3 to 3.5 cm. long, 1.5 to 2 cm. wide, slightly concave, wide-spreading when developed, obtuse, keeled on the outer surface, the keel terminating in an awn about 3 mm. long; petals white, linear-oblong, 3 to 3.5 cm. long, averaging 1 cm. wide, flat, slightly reflexed; corona in 4 series, the filaments of the 2 outer white, banded with purplish blue, the 2 inner 3 mm. and 2 mm. from the throat, the filaments of the outermost series filiform, 1.5 cm. long, 1 mm. thick at base, slightly divaricate, those of the second series ligulate, fleshy, 3 to 3.5 cm. long, 2 to 2.5 mm. wide, those of the third series capillary, 1 mm. long, those of the fourth series capillary, 2 mm. long; operculum membranous, 5 mm. long, the lower

half adnate to the floor of the calyx tube, the upper half free, slightly recurved; limen none; ovary globose, narrowed at base, densely tomentellous; fruit ovoid, thin-skinned, yellow (fide Mexia); seeds obovate, about 7 mm. long and 6 mm. wide, obscurely tridentate, coarsely reticulate.

TYPE LOCALITY: Baños, Tungurahua, Ecuador, where introduced from the eastern slopes of the Andes.

ILLUSTRATION: Contr. U. S. Nat. Herb. 24: *pl.* 42.

DISTRIBUTION: Eastern slopes of the Andes of Ecuador.

ECUADOR: *Pearce* 694 (K); *Vidal-Sénège* in 1876 (P). Río Jamboya, *Sodiro* (*Mille* 223; B, N).—Tungurahua: Baños, 1,850 meters (introduced), *Popenoe* 1271 (N, type); *Mexia* 6981 (N).—Napo-Pastaza: Río Zuni, *Mexia* 7056 (N). Archidona, *Mexia* 7284 (N).

The type of *P. Popenovii* and most of the specimens examined lack petiolar glands, but in material recently collected by Mrs. Mexia obscure, scarlike glands are sometimes borne near the base of the petiole. Their presence here rather than at the apex and the long, slender peduncles separate this from *P. laurifolia*. From *P. riparia* and *P. tolimana*, which it also closely resembles, *P. Popenovii* of course is at once differentiated by the relative length of the two outer series of corona filaments.

This is one of several species cultivated in Ecuador under the name "granadilla de Quijos," and the edible fruit is commonly on sale in the markets of Baños and Riobamba. *Popenoe* in *Fruit-bearing plants of Ecuador* (Contr. U. S. Nat. Herb. 24: 124. 1924) quotes an early work in which the fruit is described as being somewhat larger than that of *P. ligularis*.

211. ***Passiflora nigradenia*** Rusby, Mem. N. Y. Bot. Gard. 7: 311. 1927.

Plant glabrous throughout, drying yellowish green; stem terete, striate; stipules linear-subulate, 3 mm. long, soon deciduous; petioles 1.5 to 3 cm. long, canaliculate, bearing above middle 2 oval, sessile, black glands about 2 mm. long; leaves oblong, 12 to 20 cm. long, 5 to 9 cm. wide, abruptly acuminate at apex, rounded or subtruncate at base, entire, penninerved, coriaceous, sublustrous above; "flowers racemose, the racemes sometimes bearing as many as 10 flowers, and short-peduncled, pedicels 3 cm. long, terete"; bracts borne at base of flower, ovate, about 4 cm. long, 2 cm. wide, obtuse, finely puberulent without; flowers 6 cm. wide; calyx tube campanulate, 1.5 cm.

in diameter at throat; sepals oblong-lanceolate, about 3 cm. long, 1 to 1.2 cm. wide, obtuse, puberulent without; petals ovate-lanceolate, about 2 cm. long and 7 mm. wide; corona filamentose, the filaments in 2 series, white, banded with deep purple, the outer filiform, about 1 cm. long, the inner coarser, about 2 cm. long; operculum a fringe of slender, white filaments 1 to 1.5 mm. long; ovary ovoid, finely sericeous; fruit ellipsoidal, 10 cm. long, 8 cm. in diameter, obscurely pilosulous; seeds obcordate, 7 mm. long, 5 mm. wide, reticulate at center.

TYPE LOCALITY: Bolivia: Beni: Rurrenabaque.

DISTRIBUTION: Amazonian basin of northern Bolivia.

BOLIVIA: Beni: Rurrenabaque, *Rusby* in 1921 (Y, type), 1272 (N, Y).—La Paz: Tumupasa, *R. S. Williams* 515 (N, Y). San Buenaventura, *R. S. Williams* 374 (Y), 643 (BM, N, Y).

From the other entire-leaved, small-stipuled species of *Granadilla* this differs in having a very simple coronal structure, only two rows of filaments at the throat of the calyx tube. The operculum is merely a row of slender filaments.

The type sheet consists of two leaves and a detached flower, with no suggestion, consequently, of the racemose floral arrangement mentioned by *Rusby*. *Williams* 374, which, though without flowers, seems to belong to this species, bears a single peduncle (with bracts) in the axil of a leaf.

The collector states that the fruit is esteemed highly by natives.

212. *Passiflora ambigua* Hemsl. Bot. Mag. 128: pl. 7822. 1902.

Plant glabrous throughout, except the ovary; stem terete, striate; stipules filiform, 5 to 8 mm. long, deciduous; petioles 2 to 3 cm. long, bearing at or below middle 2 sessile, flattened glands; leaves oblong or ovate-lanceolate, 10 to 20 cm. long, 5 to 9 cm. wide, subabruptly acuminate, mucronulate at apex, rounded or cuneate at base, penninerved (principal lateral nerves 4 to 6 to a side, ascending), thick-coriaceous, lustrous; peduncles 4 to 7 cm. long; bracts ovate, 3 to 6 cm. long, 3 to 4 cm. wide, concave, entire, glandless; flowers 8 to 12 cm. wide; calyx tube cylindric-campanulate, about 1 cm. long; sepals narrowly linear-oblong, 4 to 5 cm. long, 1.5 to 1.8 cm. wide, obtuse, dorsally short-corniculate just below apex, fleshy, white without, pale pink and punctulate with rose-purple within; petals linear-lanceolate, 3 to 4 cm. long, 0.8 to 1 cm. wide, membranous, white, dotted with rose-purple; corona filaments in about 5 series, the outer-

most slender, 1 to 1.5 cm. long, red, banded with white, those of the second series coarser, about 5 cm. long, violet, banded with white, the inner filaments in indefinite rows, capillary, about 2 mm. long, upwardly curved; operculum membranous, horizontal, recurved at the minutely crenulate margin; limen cupuliform, closely surrounding base of gynophore; gynophore slender, 1.5 to 2 cm. long; ovary narrowly ovoid, densely brown-tomentose; fruit ovoid, 10 to 12 cm. long, 4 to 4.5 cm. in diameter, greenish yellow; seeds ovate-oblong, 6 to 7 mm. long, 5 to 6 mm. wide, closely reticulate.

TYPE LOCALITY: Bluefields, Nicaragua.

ILLUSTRATIONS: Bot. Mag. 128: *pl.* 7822; Gard. Chron. III. 31: 171. *f.* 51. 1902.

DISTRIBUTION: Southern Mexico to the Panama Canal Zone, at low elevations.

MEXICO: Lacoba, *Oersted* 4103 (Cop, K).—Tabasco: San Juan Bautista, *Rovirosa* 1036 (Ph).—Chiapas: Palenque, *Endlich* 1321 (Gen).

GUATEMALA: Secanquín, *Cook & Doyle* 79 (N).—Alta Verapaz: Choctúm, *Türckheim* 8211 (N).

HONDURAS: Lancetilla Valley, Atlántida, *Standley* 53289 (N), 54625 (N), 56786a (N). Cuyamel, *Carleton* 601 (N).

BRITISH HONDURAS: Toledo, *Peck* 810 (G). Machaca, *Schipp* 466 (Mich), 1302 (Gen, Mich).

NICARAGUA: Bluefields, *Sterridge* (K, type).

COSTA RICA: *Pittier* 16373 (Gen). Santa Rosa, *Oersted* 4100 (Cop), 4101 (Cop). Turrialba, *Oersted* 4102 (Cop). Barba, *Oersted* 4099 (Cop). Portete, *Pittier* 16101 (BM, N). La Palma, *Tonduz* 12614 (N). Viento Fresco, Alajuela, *Standley & Valerio* 47887 (N).

PANAMA: Chiriquí: *Hart* 112 (K).—Canal Zone: Gatún, *Hayes* 430 (Y).

Passiflora ambigua has been confused with *P. laurifolia*, a plant commonly cultivated in the West Indies and in parts of South America but apparently unknown, wild or cultivated, in Central America or Mexico. It is distinguished from *P. laurifolia* by the position of the glands at or below the middle of the petiole rather than at its apex, by the absence of glands at the margin of the bracts, by differently colored flowers, and by the obtuse, rather than subulate, tips of the longer of the corona filaments.

LOCAL NAMES: "Injo," "jujo," "jujito" (Mexico); "granadilla," "granadilla de monte" (Central America).

213. *Passiflora laurifolia* L. Sp. Pl. 956. 1753.

Granadilla laurifolia Medic. Malvenfam. 97. 1787.

Passiflora tinifolia Juss. Ann. Mus. Hist. Nat. 6: 113. *pl.* 41, *f.* 2. 1805.

Passiflora oblongifolia Pulle, Enum. Pl. Surinam 321. *pl.* 14, *f.* 3. 1906.

Passiflora laurifolia var. *tinifolia* Bois, Pl. Alimeret. 2: 357. 1928.

Plant glabrous, except the ovary and bracts; stem terete; stipules narrowly linear, 3 to 4 mm. long, coriaceous; petioles 5 to 15 mm. long, stout, biglandular just below apex, the glands oblong, 1 to 1.5 mm. in diameter, sessile; leaves ovate-oblong or oblong, 6 to 12 cm. long, 3.5 to 8 cm. wide, subacute, rounded, or obtuse, usually mucronulate at apex, rounded or slightly emarginate at base, 1-nerved, strongly reticulate-veined, thick-coriaceous, lustrous; peduncles 2 to 3 cm. (rarely up to 8 cm.) long; bracts ovate-oblong, 2.5 to 4 cm. long, 2 to 2.5 cm. wide, obtuse at apex, narrowed at base, glandular-serrate toward apex, finely puberulent; flowers 5 to 7 cm. wide, calyx tube cylindric-campanulate, up to 1 cm. long; sepals oblong, 2 to 2.5 cm. long, about 1 cm. wide, obtuse, corniculate dorsally just below apex, green and red-maculate without, red or purplish red within; petals similar to the sepals, slightly smaller; corona filaments transversely banded with red, blue, violet, or purple, and white, in 6 series, the outermost ligulate, about 2 cm. long, attenuate, those of the second series ligulate, 3 to 4 cm. long, about 2 mm. wide, those of the succeeding 3 series barely 1 mm. long, the innermost filaments about 1.5 mm. long; operculum membranous, horizontal, the margin recurved, minutely denticulate; limen cupuliform, closely surrounding base of gynophore; ovary ovoid, sericeo-tomentose; fruit ovoid, 5 to 8 cm. long, about 4 cm. in diameter, edible, the exocarp parchment-like, lemon-yellow or orange-colored; seeds obcordate, 5 to 7 mm. long, 3 to 5 mm. wide, finely reticulate.

TYPE LOCALITY: Surinam (based on Merian, Hist. Gén. Insectes Surinam 21: *pl.* 21).

ILLUSTRATIONS: Amoen. Acad. 1: *pl.* 10, *f.* 6; Plum. Pl. Amer. *pl.* 80; Pluk. Alm. *pl.* 211, *f.* 3; Jacq. Hort. Vind. 3: *pl.* 162; Cav. Diss. 10: *pl.* 284; Trans. Linn. Soc. London 2: *pl.* 4; Bot. Reg. 1: *pl.* 13. Ann. Mus. Hist. Nat. 6: *pl.* 41, *f.* 2; Pulle, Enum. Surinam. *pl.* 14, *f.* 3.

DISTRIBUTION: Throughout the West Indies and the Guianas, Trinidad and northern Venezuela to Amazonian Peru and eastern Brazil; extensively cultivated.

CUBA: Río Navas, *Shafer* 4411 (F, N, Y).—Oriente: Baracoa, *Ekman* 4204 (S).

HAITI: Tortue Island, *Leonard & Leonard* 11340 (N), 12529 (N), 15434 (N); *Ekman* H9804 (N). Bayeux, *Ekman* 2612 (B, S).

DOMINICAN REPUBLIC: Puerto Plato, *Raunkiaer* 850 (Cop), 1381 (Cop); *Ekman* 14491 (N). Samaná, *Miller* 1236 (N). Río Nameyes, *Eggers* 2701 (N, Y).

JAMAICA: *Hart* 655 (N). Kingston, cultivated, *Maxon & Killip* 1737 (N).

PUERTO RICO: Fajardo, *Sintenis* 1890 (N).

VIRGIN ISLANDS (U. S.): St. Croix, *Ricksecker* 331 (F), 501 (G, Minn, N), 502 (F).—St. Thomas: *Riédle* (P); *Eggers* 765 (B, Bo, Brux, Gen, N, P, V); *Ehrenberg* 303 (B); *Toepffer* 765 (Gen); *Friedrichsthal* 165 (V).—St. John: *Britton & Shafer* 563 (N, Y).

ST. MARTIN: *Boldingh* 3333 (Ut).

SABA: *Boldingh* 2272 (Ut).

ST. EUSTATIUS: *Boldingh* 249 (Ut), 290 (Ut), 526 (Ut).

GUADELOUPE: *Duchassaing* (P); *Duss* 3249 (Cop).

DOMINICA: Botanic Gardens, *Fairchild* in 1932 (N).

MARTINIQUE: *Plée* (P); *Steinheil* 177 (P); *Dapperrey* in 1825 (P); *Hahn* (P); *Mouret* 210 (P); *Duss* 604 (P), 879, in part (N); *G. W. Smith* 942 (G).

ST. VINCENT: *Eggers* 6958 (P); *H. H. Smith* 236 (J, Y).

GRENADA: *H. H. Smith* B132 (BM); *Broadway* in 1904 (N, Y).

TRINIDAD: Caroni, *Britton & Mendelson* 836 (G, N, Y). Arena, *Broadway* 6368 (K), in 1924 (F). Piarco, *Trinidad Herb.* 10999 (T). La Brea, *Trinidad Herb.* 9110 (T). Aripo, *Trinidad Herb.* 10912 (T).

FRENCH GUIANA: *Leblond* in 1792 (Gen). Karouany, *Sagot* 281 (B, BM, Brux, Gen, K, P, S). Godebere, *Wachenheim* 61 (BM, K). Cayenne, *Broadway* 291 (N, Y), 494 (N, Y), 748 (N, Y).

SURINAM: *Berthoud-Coulon* 513 (BM), 515 (BM); *Tulleken* 92 (Leid); *Hostmann* 543 (K). Para Marquisade, *Hostmann* 541 (Gen, Leid, Ut, V). Paramaribo, *Went* 351 (Ut); *Splitgerber* 464 (Leid); *Wullschlägel* 213 (Brux, V), 237 (V). Sandrij I, *Archer* 2763 (N); *Samuels* 468 (G, K, Y). Tapanahoni River, near Drie Tabbetje, *Versteeg* 652 (Ut, type of *P. oblongifolia*). Marowijne River, *Kappler*

1991 (Ut). Commewijne River, *Focke* 748 (Ut). Upper Nickerie River, *B. W.* 1080 (Ut). Susannadaal, *Soeprata* 33F (Ut).

BRITISH GUIANA: *British Guiana Herb.* 132 (B). Coast lands, *Jenman* 5406 (N), 5407, in part (N). Potaro Landing, *Jenman* 7508 (BG). San Carlos, *Schwyn* 713 (B). Demerara, *Parker* (K).

VENEZUELA: Nueva Esparta: Margarita Island, *J. R. Johnston* 494 (G).

PERU: Loreto: Tarapoto, *Ule* 6337 (B, Gen, Go, K), 6545 (B, Go, K).—Huánuco: Chicoplaya, *Ruiz & Pavón* (Bo).

BRAZIL: Rio Urarimera, *Koch* B4 (B).—Ceará: Crato, *Gardner* 1663 (BM, Bo, Gen, K, P, Y).

This group of granadillas, with small stipules and glabrous, laurel-shaped leaves, which are here brought together in the series *Laurifoliae*, is an exceedingly difficult one, due to a general similarity in the shape of the leaves and to the absence of any indument on the vegetative parts by which ready distinctions can be made. The species appear to fall into two main groups, one with the outermost series of corona filaments much shorter than the next series (the difference well shown in Popenoe's illustration of *P. Popenovii* in *Contr. U. S. Nat. Herb.* 24: *pl.* 42), the other with the outermost filaments equaling or exceeding those of the next series. In the first group the species all have pubescent ovaries; in the second, the ovary is pubescent in *P. riparia*, *P. tolimana*, *P. acuminata*, and *P. Gleasoni* and glabrous in the four other species. The species of the first group, with the exception of *P. nigradenia*, differ in only minor characters but these differences correlate well with the geographical distribution of the species. In *P. ambigua*, from Central America, the glands are borne *below* the middle of the petiole, and there is a distinct space between the second and the third row of corona filaments. In *P. laurifolia* the glands are borne near the apex of the petiole, and the third row of filaments is situated close to the second row. *Passiflora nigradenia* has a coronal structure very different from any of these.

Passiflora tinifolia appears to be this species. The type, collected in French Guiana by Richard, is not in the Jussieu Herbarium at Paris. Jussieu states that *P. laurifolia* differs from *P. tinifolia* in having leaves emarginate at the base, petioles glandular at the apex, not at the middle, and more deeply crenate bracts, which are as long as the sepals (much shorter than the sepals in *P. tinifolia*). In the illustration accompanying Jussieu's description of *P. tinifolia*

the bracts are borne well above the middle; the shorter outermost row of filaments, outside of the long, prominent filaments, characteristic of *P. laurifolia*, is not shown in this figure, but this is apparently a conventionalized drawing of the flower, and too much importance should not be attached to it.

In the Linnean Herbarium there are three specimens belonging to this complex group, these bearing the following inscriptions:

No. 2. "pallida" in ink by Linnaeus; "laurifolia Jacq. non Linn. H. B. Herb. Banks, non Plumieri icon." in pencil by J. E. Smith. This is typical *P. laurifolia*.

No. 5. "rubrum" and "Surinam" in ink by Linnaeus; "laurifolia" in ink by J. E. Smith. This is *P. nitida*.

No. 6. Not named by Linnaeus; "laurifolia?" in pencil by J. E. Smith. This is *P. laurifolia*.

The species is not represented by a true type in the Linnean Herbarium. Most of the specimens from the upper Amazon basin which have been identified as *P. laurifolia* prove to be *P. nitida* or *P. riparia*.

Passiflora laurifolia is extensively cultivated in the West Indies, both for ornamental purposes and for its fruit. The pulp is used in making cooling drinks and sherbets.

LOCAL NAMES: "Water lemon," "Jamaican honeysuckle" (British West Indies); "saibey" (Cuba); "parcha," "bell apple" (Puerto Rico); "pomme liane" (Martinique, French Guiana); "vinegar pear" (West Indies); "scimitoo" (British Guiana); "maracujá laranja" (Brazil); "maritambour" (French Guiana); "macousa," "markoesa," "Para-markoesa," "sosopora," "semitoo" (Surinam).

214. *Passiflora acuminata* DC. Prodr. 3: 328. 1828.

Plant glabrous throughout, except the ovary; stem terete or subangular; stipules narrowly linear, about 4 mm. long, falcate, deciduous; petioles about 1 cm. long, conspicuously biglandular at apex; leaves lanceolate or oblong-lanceolate, 7 to 14 cm. long, 2 to 5 cm. wide, tapering gradually to an acute apex, rounded or acutish at base, entire, penninerved (principal lateral nerves 6 or 7 to a side), membranous or subcoriaceous, sublustrous; peduncles solitary, 3 to 4 cm. long; bracts oblong, 2.5 to 4 cm. long, 1 to 1.5 cm. wide, obtuse at apex, narrowed at base, entire; flowers 5 to 6 cm. wide, "pale blue"; sepals narrowly lanceolate, 2 to 2.5 cm. long, 6 to 7 mm. wide, dorsally awned just below apex; petals similar to the sepals, about 1.5 cm. long; corona filaments in 5 series, those of the 2 outer series

subequal, 3 to 4 cm. long, narrowly linear, filiform toward the tips, those of the next 2 series few, setaceous, barely 1 mm. long, the innermost filaments subulate, 5 to 6 mm. long, conspicuously banded with violet and white; operculum membranous, 4 to 5 mm. high, slightly incurved, minutely fimbriate; limen tubular, closely surrounding base of gynophore; ovary ovoid, minutely puberulent.

TYPE LOCALITY: Brazil.

DISTRIBUTION: Along the lower Amazon River, Brazil.

BRAZIL: *Collector uncertain* (P, type).—Pará: Obidos, *Swallen 5095* (N). Faro, *Ducke 10528* (Go). Santarem, *Spruce 760* (K, P). Pará, *Hoffmannsegg* (Brux, BW); *Burchell 9504* (G, K, P), *9988* (K); *Killip & Smith 30272* (N, Y). Ilha do Mosqueiro, *Killip & Smith 30572* (N, Y).

Passiflora acuminata was treated by Masters as a variant of *P. laurifolia* with narrower leaves. The type at Paris is well preserved, but I did not make a dissection of the interior of the flowers; however, the two outer rows of corona filaments are clearly visible, and these are far slenderer than in *P. laurifolia*. *Swallen 5095* obviously represents *P. acuminata*, and from it part of the above diagnosis has been drawn. The very slender filaments are suggestive of *P. Gleasoni*, but that species differs in having much smaller, reddish bracts and a wholly different operculum, and the innermost filaments are very short.

215. *Passiflora Gleasoni* Killip, Journ. Wash. Acad. Sci. 14: 112. 1924.

Plant glabrous throughout, except the bracts and ovary; stipules setaceous, 8 mm. long, early deciduous; petioles up to 2 cm. long, biglandular about 5 mm. below apex, the glands sessile, 2 mm. in diameter; leaves oblong, up to 16 cm. long and 9 cm. wide, abruptly acuminate at apex, truncate at base, remotely and shallowly glandular-serrulate, or subentire, subcoriaceous, lustrous above; peduncles up to 5 cm. long; bracts oblong-elliptic, about 2 cm. long, 4 to 5 mm. wide, cuspidate-acuminate, glandular-serrate at apex, finely puberulent on both surfaces, reddish (when dry); flowers about 8 cm. wide; sepals lanceolate, 3 to 3.5 cm. long, about 1 cm. wide, obtuse, not awned at apex; petals linear, about 2 cm. long and 5 mm. wide, obtuse, much thinner than sepals; corona filaments in 3 series, those of the 2 outer subequal, capillary, 4 to 5 cm. long, those of the third series narrowly linear, 1 mm. long; operculum membranous, 7 to 8 mm. high, cleft to the base into linear segments

nearly 3 mm. wide; nectar ring a low, annular ridge; limen borne close to base of gynophore, barely 2 mm. high, denticulate; ovary ovoid, finely ferruginous-tomentellous.

TYPE LOCALITY: Pomeroon River, Pomeroon District, British Guiana.

DISTRIBUTION: British Guiana.

BRITISH GUIANA: Pomeroon River, Pomeroon District, *De la Cruz* 2963 (N, type, Y). Bartica, Essequibo River, *Sandwith* 254 (K).

The foliage of this species resembles that of *P. nitida* HBK., but the bracts and flowers are very different. *Passiflora nitida* has larger, rounded bracts, and the outer corona filaments are thick and fleshy. In *P. Gleasoni* the bracts are narrowed at both ends, resembling those of *P. vitifolia*, and the corona filaments are extremely slender.

216. *Passiflora riparia* Mart. ex Mast. in Mart. Fl. Bras. 13, pt. 1: 599. *pl.* 116. 1872.

Plant glabrous, except the ovary; stem terete; stipules linear, 3 to 4 mm. long, soon deciduous; petioles 1.5 to 2 cm. long, biglandular at middle, the glands sessile; leaves oblong or oblanceolate, 10 to 15 cm. long, 4.5 to 8 cm. wide, abruptly acuminate at apex, rounded, retuse, or narrowed at base, entire or minutely serrulate, 1-nerved (principal secondary nerves 6 or 7 pairs), subcoriaceous; peduncles 4 to 5 cm. long, borne on short (about 3 cm.), axillary, leafless (or with much reduced leaves) branches; bracts ovate-oblong, 3 to 4 cm. long, 1.5 to 2 cm. wide, obtuse, glandular at margin, reddish; calyx tube cylindric-campanulate, about 1 cm. long, 1.5 cm. wide at throat; sepals oblong, 4 to 5 cm. long, 2 cm. wide, obtuse, dorsally awned just below apex (awn about 5 mm. long), white, green-tinged; petals oblong-linear, about 4 cm. long and 8 mm. wide, obtuse, white; corona in several series, the 2 outer filamentose, the filaments carnose, about 2 mm. thick, subequal, 4 to 5 cm. long, banded with blue or violet and white, these followed by an irregular mass of tubercles covering about 6 mm. of the height of the tube, the innermost series filamentose, the filaments about 2 mm. long; operculum membranous, horizontally spreading, the margin recurved, crenulate; gynophore white; ovary ovoid, rufo-sericeo-tomentose; fruit ovoid or globose, 3 to 4 cm. long, 2.5 to 3.5 cm. in diameter, tomentellous; seeds obovate, 7 to 8 mm. long, 5 to 6 mm. wide, reticulate at center, striate at margin.

TYPE LOCALITY: Amazon River, at mouth of Rio Madeira, Brazil (type collected by Martius).

ILLUSTRATION: Mart. Fl. Bras. 13, pt. 1: *pl.* 116.

DISTRIBUTION: Amazonian basin of Peru and Brazil.

PERU: San Martín: Tarapoto, *L. Williams* 5637 (F), 5848 (F). Alto Río Huallaga, *L. Williams* 6300 (N). Lamas, *L. Williams* 6378 (N). Juanjui, *Klug* 3897 (F, N, Y). Chasuta, *Klug* 4037 (F, N, Y).—Loreto: Yurimaguas, *Killip & Smith* 28214 (N, Y), 28940 (N, Y); *L. Williams* 7876 (N). Lower Río Huallaga, *Killip & Smith* 29012 (N, Y). Iquitos, *L. Williams* 1392 (N), 1440 (N), 7996 (N). La Victoria, Amazon River, *L. Williams* 3126 (N).—Junín: Puerto Yessup, *Killip & Smith* 26307 (F, N, Y). Puerto Bermúdez, *Killip & Smith* 26683 (N, Y).

BRAZIL: Rio Pacimoni, *Spruce* 3390 (K, P, V).—Amazonas: São Gabriel, Rio Negro, *Spruce* 2191 (K, P, V). Barra (Manaos), *Spruce* 1172 (K, P), 1394, in part (K, P). Lago do Aleixo, *Ducke* 24044 (N).—Pará: Belem, *Ducke* 17338 (N). Santarem, *Swallen* 3309 (N).

Passiflora riparia appears to be the commonest representative of this series in the upper and middle Amazon Valley, many specimens hitherto considered *P. laurifolia* evidently belonging here. Though in the shape of the leaves and in the indument of the ovary it closely resembles *P. laurifolia*, the corona filaments are much longer and the two outer series are subequal. Another species with which *P. riparia* may easily be confused is *P. nitida*, but in that the ovary is glabrous, the corona filaments are somewhat slenderer, and the whole plant usually becomes very dark upon drying. A mark that may serve to distinguish *P. riparia* from all its allies is the grouping of the flowers in clusters on short, axillary, leafless branches. However, as only one of the flowers on the branch may develop or persist, this character can not always be relied upon.

Ducke 24044, *Swallen* 3309, and certain other specimens from the middle Amazon are doubtfully referred here. The glands are borne at the apex of the petiole and the leaves are narrow, yet the flowers seem indistinguishable from those of *P. riparia*. A note accompanying the *Ducke* specimen states that the mature fruit is citron-colored, with a very acid, nonedible pulp.

217. *Passiflora tolimana* Harms, Bot. Jahrb. 18: Beibl. 46: 9. 1894.

Plant glabrous throughout, except the inflorescence; stem purplish, 5-angled; stipules linear, 4 to 6 mm. long, glandular-serrate

toward apex, soon deciduous; petioles 1 to 1.5 cm. long, biglandular in upper half, the glands sessile, about 1 mm. in diameter; leaves oblong-lanceolate, 10 to 20 cm. long, 3 to 10 cm. wide, abruptly acuminate and mucronate at apex (tip about 1 cm. long), narrowed at base, 1-nerved (secondary nerves 6 to 10 to a side, distant, curved-ascending), entire or remotely and obscurely denticulate; peduncles solitary, up to 3 cm. long, stout; bracts ovate-oblong, 2.5 to 3.5 cm. long, about 2 cm. wide, rounded at apex, free to base, glandular-serrate; calyx tube broadly campanulate, sparingly pilose without; sepals oblong, 1.5 to 2 cm. long, about 7 mm. wide, dorsally corniculate below apex, tomentellous and greenish white without, light violet within; petals similar to the sepals, slightly narrower, light violet; corona filaments banded with light violet and white, in 4 or 5 series, those of the 2 outer ones subequal, slightly exceeding the petals, very slender at the tips, the inner filaments much shorter, united at base; operculum membranous, inflexed at base, the margin erect, short-toothed; limen annular, closely surrounding the base of the gynophore, about 1.2 cm. long, bearing a thickened, annular process about 1.5 mm. above its base; ovary ellipsoidal, short-tomentose.

TYPE LOCALITY: Dolores, Department of Tolima, Colombia.

ILLUSTRATION: Mutis, Icon. Pl. Ined. 26: *pl.* 4.

DISTRIBUTION: Central and Western Cordilleras of Colombia.

COLOMBIA: Tolima: Dolores, 1,400–1,800 meters, *Lehmann 6060* (B, type, K).—El Valle: La Cumbre, 2,000 meters, *Pennell & Killip 5754* (N); *Killip 5594* (G, N, Ph, Y), *11679* (G, N, Ph, Y).

Passiflora tolimana and *P. nitida* are the only representatives of *Laurifoliae* in western Colombia, the present species being quite common about La Cumbre, but at the time of my visit in October the plants were in young bud only. Lehmann's notes state that the pulp is sourish-sweet and edible.

218. *Passiflora odontophylla* Harms ex Glaziou, Bull. Soc. Bot. France 56, Mém. 3d: 315. 1909, name only; Repert. Sp. Nov. 18: 296. 1922.

Plant glabrous throughout; stem subangular; stipules setaceous(?), early deciduous; petioles 2 to 4 cm. long, minutely biglandular at apex; leaves ovate, 11 to 14 cm. long, 7 to 9 cm. wide, abruptly acuminate at apex, cordulate at base, conspicuously crenulate-serrulate, 3–5-nerved, membranous, sublustrous; peduncles

slender, 6 to 8 cm. long; bracts ovate-oblong to oblong, 3 to 3.5 cm. long, about 2 cm. wide, concave, rounded and apiculate at apex, reddish brown when dry; flowers rose; calyx tube campanulate, 7 to 8 mm. long, about 1 cm. wide; sepals oblong-lanceolate, 2.5 to 3 cm. long, 1 cm. wide, obtuse, terminating in a foliaceous awn about 2 mm. long; petals lanceolate, about 2 cm. long and 5 mm. wide; corona in several series, the outermost filaments about 1.5 cm. long, those of the second rank about 5 mm. long, the succeeding rows 0.3 to 0.4 mm. long; operculum membranous, fimbriate; nectar ring small; limen membranous, cupuliform, closely surrounding base of gynophore; ovary subglobose, glabrous.

TYPE LOCALITY: Alto Macace de Nova Friburgo, Rio de Janeiro, Brazil.

DISTRIBUTION: Known only from the State of Rio de Janeiro, Brazil.

BRAZIL: Rio de Janeiro: Alto Macace de Nova Friburgo, *Glaziou 20333* (B, type, Cop, K, P); *Ule 4906* (B).

Closely allied to *P. nitida*, this species differs in having 3-5-nerved, more deeply toothed, thinner leaves, and much slenderer petioles and peduncles.

219. *Passiflora ischnoclada* Harms, Notizbl. Bot. Gart. Berlin 10: 812. 1929.

Plant glabrous throughout; stem slender; stipules filiform, 3 to 4 mm. long; petioles 0.5 to 1.5 cm. long, glandular at or above middle, the glands short-stipitate; leaves oblong, ovate-lanceolate, or ovate-oblong, 2 to 6 cm. long, 1 to 3 cm. wide, acute at apex, short-mucronulate, rounded and subpeltate at base, membranous, lustrous, conspicuously veined; peduncles solitary, 7 to 11 cm. long, slender; bracts broadly ovate, 2 to 2.5 cm. or more long, obtuse at apex, mucronulate, rounded or cordulate at base, membranous, violet-rose(?); calyx tube campanulate, about 4 mm. long, ventricose; sepals 2.5 cm. long, or more, dorsally winged-carinate toward apex, the keel terminating in a short awn.

TYPE LOCALITY: Rio Claro, São Paulo, Brazil.

DISTRIBUTION: Known only from the type locality, in southern Brazil.

BRAZIL: São Paulo: Rio Claro, *Löfgren 5754* (B, type).

This is known only from the type specimen, the condition of whose flowers does not permit a satisfactory diagnosis. Although

the large, highly colored bracts and the shape of the leaves suggest a close relationship with *P. Jileki* and *P. actinia*, the filiform stipules necessitate placing the species at this point in the present treatment. Among the species with small stipules and entire leaves *P. Popenovii* alone has peduncles as long as those of *P. ischnoclada*.

220. *Passiflora nitida* HBK. Nov. Gen. & Sp. 2: 130. 1817.
Figure 2, c.

Passiflora nymphaeoides Karst. Linnaea 30: 165. 1859 or 1860.

Plant glabrous throughout; stem terete, the younger portions subangular; stipules linear-subulate, 5 to 6 mm. long; petioles up to 3 cm. long, biglandular at apex, the glands sessile; leaves ovate-oblong, ovate-elliptic, or broadly ovate, 9 to 17 cm. long, 6 to 10 cm. wide, acute or acuminate at apex, rounded at base, subentire, undulate-denticulate, or serrulate (rarely regularly serrate to base), coriaceous or subcoriaceous, lustrous on both surfaces, usually becoming blackish in drying; peduncles rather stout, 3 to 6 cm. long; bracts oblong-ovate, about 3.5 cm. long, 2.5 cm. wide, rounded at apex and base; flowers 9 to 11 cm. wide; calyx tube campanulate; sepals oblong-lanceolate, 4 to 4.5 cm. long, 1 to 1.5 cm. wide, obtuse, fleshy, greenish without, white within; petals narrowly oblong, 4 to 4.5 cm. long, 0.8 to 1 cm. wide, obtuse, membranous, white; corona filaments in several series, the 2 outer subequal, 2 to 3.5 cm. long, about 1 mm. thick, terete, long-attenuate, white and densely pink-spotted at base, alternately banded with blue and white at middle, white at tips, those of the succeeding 2 or 3 series filiform, 2 to 3 mm. long, white, the innermost filaments about 1 cm. long; operculum membranous, 5 to 8 mm. wide, white, horizontal, the margin erect, fimbriate, the fringe about 1 mm. long; limen membranous, tubular, closely surrounding base of gynophore; ovary obovoid, glabrous; fruit globose, 3 to 4 cm. in diameter; seeds obcordate, about 5 mm. long and 3 mm. wide, tridentate at apex, reticulate.

TYPE LOCALITY: Forests along Orinoco River, near Javita, Venezuela.

ILLUSTRATION: Mart. Fl. Bras. 13, pt. 1: pl. 118.

DISTRIBUTION: Western coast of Colombia; eastern Colombia to the Guianas, and south to Peru, and Goyaz, Brazil; at low elevations. Also in Panama, though perhaps cultivated.

PANAMA: Canal Zone: Summit, cultivated(?), *Lindsay 230* (N).

SURINAM: *Splitgerber* 458 (Leid). Nickerie River, *Pulle* 549 (Ut). Para, *Wulschlägel* 1475 (Brux). Groningen, *Samuels* 124 (B, G, K, Leid). Gran Rio, *Hulk* 294 (Ut).

BRITISH GUIANA: *Schomburgk* 956 (B, Bo, Gen, K, N, V); *Jenman* 1764 (Y), 5407, in part (N, Y), 6428 (Y). Cultivated, *British Guiana Herb.* 4495 (N). Demerara River, *Jenman* 4783 (Minn, N, Ph, Y); *Parker* (K). Rockstone, *Gleason* 855 (N, Y). Moruka River, *De la Cruz* 989 (N, Y), 2504 (N, Y), 4573 (N, Ph, Y). Between Demerara and Barbice rivers, *De la Cruz* 1625 (G, N, Y). Amakura River, *De la Cruz* 3538 (F, G, Mo, N, Ph, Y). Essequibo River, *Persaud* 342 (F), 342bis (F); *Myers* 5326 (K). Mazaruni River, *De la Cruz* 4191 (G, N, Y). Mabaruna Compound, *Archer* 2291 (N), 2305 (N).

VENEZUELA: Along Orinoco River, near Javita, *Humboldt & Bonpland* (type, B, BW, P). Orinoco River, *Chaffanjon* (P).—Amazonas: San Carlos, *Spruce* 3472 (K, P).

COLOMBIA: Cundinamarca: Piperal, near Bogotá, *Karsten* (B, V, type of *P. nympheoides*); *Triana* 2937 (BM, HNC, P). Tena, *Lehmann* 8015 (K). Utica, *Cortés* in 1900 (Bog).—Meta: Villavicencio, *Apollinaire Marie* in 1928 (Bog).—El Valle: Buenaventura, *Triana* 2931 (BM, Gen, HNC, K, P).

PERU: Loreto: Iquitos, *Killip & Smith* 26909 (F, N, Y), 27158 (F, N, Y); *Klug* 256 (F, N, Y), 828 (F, N, Y); *L. Williams* 1333 (F), 1517 (N); *Tessmann* 3703 (B, Gen); *Mexia* 6488 (N). Río Nanay, *L. Williams* 1130 (N). La Victoria, *L. Williams* 2800 (N). Río Rumiayacu, *Raimondi* 614 (B).

BRAZIL: *Hoffmannsegg* (BW); *Pohl* 924 (B, K).—Amazonas: Manaos, *Killip & Smith* 30073 (N, Y); *Ule* 5974 (B, Gen, Go, K); *Labroy* in 1906 (P). Santa Izabel, *G. H. H. Tate* 83 (Y). Ega, *Poeppig* 2584 (V), 2712 (V), 2893 (V). São Paulo de Olivença, *Krukoff* 8943 (Y).—Pará: Tapaná, *Killip & Smith* 30371 (N, Y). Rio Tapajós, *Krukoff* 1264 (Gen, Ut, Y). Marco, *Baker* 83 (Go). Rio Arinos, *Kuhlmann* 1064 (B).—Bahia: *Blanchet* in 1839 (BM).—Goyaz: Santa Cruz, *Pohl* 2863 (V).

In Humboldt's type and the Peruvian material here listed the leaves are proportionately narrower and more noticeably serrulate (though scarcely "serrate-dentate" as originally described) than in the numerous specimens from British Guiana. No other differences are discernible, however. In herbaria this species has often been confused with *P. laurifolia*, although the two are readily distinguished

by differences in the corona and operculum. The specimens often turn black in drying, a condition not noted in *P. laurifolia*.

LOCAL NAMES: "Bell-apple," "semito," "maricouia" (British Guiana); "maracujá de cheiro" (Brazil).

221. *Passiflora guazumaefolia* Juss. Ann. Mus. Hist. Nat. 6: 112. *pl.* 39, *f.* 1. 1805.

(?) *Passiflora theobromaefolia* DC. Prodr. 3: 331. 1828.

Plant glabrous throughout; stipules setaceous, 5 to 6 mm. long; petioles up to 3 cm. long, biglandular just above middle, the glands sessile, 0.6 mm. in diameter; leaves oblong-lanceolate, 7 to 12 cm. long, 3 to 4.5 cm. wide, abruptly acuminate at apex, rounded or truncate at base, shallowly denticulate or subentire, membranous or subcoriaceous; peduncles up to 4 cm. long; bracts ovate, 1.5 to 2 cm. long, 1.3 to 1.5 cm. wide, rounded at apex, narrowed at base, minutely glandular-serrulate toward apex, more conspicuously so toward base; flowers 5 to 7 cm. wide; sepals oblong, 2.5 to 3 cm. long, about 1 cm. wide, obtuse, short-awned distally; petals linear-lanceolate, subequal to the sepals, obtuse; corona filaments in several series, the 2 outer subequal, filiform, 1.5 to 2 cm. long, those of the succeeding series densely massed, 1 to 2 mm. long; operculum membranous, about 2 mm. high, erect, minutely denticulate; nectar ring annular; limen cylindric, closely surrounding base of gynophore; ovary ovoid, glabrous; fruit globose, 4 cm. in diameter; seeds obcordate, 7 mm. long, 5 mm. wide, apiculate, the axis slightly curved, the surface faintly reticulate.

TYPE LOCALITY: Tenerife, lower Magdalena Valley, Colombia.

ILLUSTRATIONS: Ann. Mus. Hist. Nat. 6: *pl.* 39, *f.* 1; Mutis, Icon. Pl. Ined. 26: *pl.* 13.

DISTRIBUTION: Valleys of the Magdalena River, Colombia, and the Orinoco River, Venezuela.

VENEZUELA: Bolívar: Ciudad Bolívar, *Lehmann 8773* (B, K); *Holt & Blake 843* (N). Along Orinoco River, *Chaffanjon 256* (P).

COLOMBIA: Magdalena: Tenerife, *Humboldt & Bonpland* (P, type). Gamarra, *Dawe 496* (K, N). Magdalena Valley, *Dawe 960* (K).—Bolívar: Lands of Loba, *Curran 30* (N).—Santander: Puerto Wilches, *Killip & Smith 14800* (A, G, N, Y).—Tolima: Honda, *Bonpland* (B).—Meta: Villavicencio, *André 1029* (K).

Related to *P. nitida*, this species is distinguished by proportionately narrower leaves, glabrous bracts, smaller flowers, shorter and much slenderer corona filaments, and a shorter operculum.

Series 6. *Serratifoliae*222. *Passiflora bahiensis* Klotzsch, Linnaea 14: 293. 1840.

Passiflora parahybensis Barb. Rodr. Pl. Nov. Jard. Bot. Rio de Janeiro 5: 1. pl. 1. 1896.

Plant densely hirtellous nearly throughout; stipules linear, about 1 cm. long, glandular-denticulate, deciduous; petioles about 1 cm. long, biglandular at apex, the glands sessile; leaves ovate or ovate-oblong, 8 to 16 cm. long, 5 to 9 cm. wide, acute or acuminate at apex, cordulate at base, irregularly dentate, subcoriaceous, glabrescent above, densely pubescent, hirtellous on nerves, beneath; peduncles 3 (rarely 2) to 6 to an axil, 1.5 to 2 cm. long, slender, articulate near apex; bracts linear-lanceolate, 6 to 10 mm. long, 1.5 to 2 mm. wide, serrulate, soon deciduous; flowers 2 to 3 cm. wide; calyx tube short-campanulate; sepals oblong, about 10 mm. long, 4 mm. wide, obtuse, minutely mucronulate just below apex; petals subequal to and narrower than sepals, white; corona filaments in 5 series, those of the 2 outer series narrowly liguliform, 6 to 8 mm. long, the inner capillary, about 1.5 mm. long; operculum membranous, filamentose above; limen closely surrounding base of gynophore; ovary globose, tomentellous or glabrous; fruit globose, about 2.5 cm. in diameter, glabrous; seeds obovate, 3.5 mm. long, 2.5 mm. wide, reticulate.

TYPE LOCALITY: Bahia, Brazil.

ILLUSTRATION: Pl. Nov. Jard. Bot. Rio de Janeiro 5: pl. 1.

DISTRIBUTION: States of Bahia and Pernambuco, eastern Brazil.

BRAZIL: Bahia: Bahia, *Salzmann* 290 (type collection; Gen, P); *Blanchet* 147 (BM, Bo, Gen); *Glocker* 542 (BM, N, S). Cruz do Cosme, *Luschnath* 199 (B, Bo, Brux).—Pernambuco: Tapera, *Pickel* 3099 (N).

The flowers and bracts of *P. bahiensis* are much smaller than in most other species of *Granadilla*. The dense, brown indument covering the stem and the under side of the leaves is like that of the well known *P. vitifolia*.

223. *Passiflora malacophylla* Mast. in Mart. Fl. Bras. 13, pt. 1: 604. pl. 117, f. 2. 1872.

Plant ferruginous-tomentellous throughout; stem terete; stipules setaceous, 3 to 4 mm. long, soon deciduous; petioles 0.5 to 1 cm. long, biglandular at apex; leaves elliptic-lanceolate, 4 to 10 cm. long, 1.5 to 5 cm. wide, subacute, rounded at base, serrulate, 1-nerved (about

6 lateral secondary nerves to a side), membranous or subcoriaceous, rufo-hirtellous, especially beneath; peduncles solitary, 1 to 1.5 cm. long, articulate; bracts narrowly oblong, 0.8 to 1.5 cm. long, 2 to 6 mm. wide, undulate; flowers 5 to 8 cm. wide; sepals narrowly oblong, 3 to 3.5 cm. long, about 1 cm. wide, obtuse, keeled without, the keel terminating in a short awn; petals equaling sepals, white; corona filaments in several series, the outermost liguliform, 6 to 8 mm. long, those of the succeeding series filiform, 2 to 3 mm. long; operculum membranous, 4 to 5 mm. long, inclined inward, erose at margin; nectar ring a low, annular ridge midway between operculum and base of gynophore; limen(?); ovary ovoid, tomentose.

TYPE LOCALITY: Lagôa Santa, Minas Geraes, Brazil.

ILLUSTRATION: Mart. Fl. Bras. 13, pt. 1: *pl.* 117, *f.* 2.

DISTRIBUTION: East-central Brazil.

BRAZIL: Ilha Santa Catharina, *Gaudichaud* (P).—Bahia: *Blanchet* 10 (F), 438 (Y).—Minas Geraes: Lagôa Santa, *Warming* 1178 (Cop, type).

The vegetative characters of *P. malacophylla* and *P. bahiensis* are very similar, but the bracts and the flowers of the former are much larger and the peduncles are solitary, not fascicled.

224. *Passiflora serratifolia* L. Sp. Pl. 955. 1753.

Granadilla serratifolia Medic. Malvenfam. 97. 1787.

Passiflora denticulata Sessé & Moc. Fl. Mex. 227. 1887.

Stem terete, striate, hirtellous; stipules linear-subulate, about 7 mm. long, serrulate toward apex; petioles 5 to 12 cm. long, densely hirtellous, bearing 6 clavate glands about 1 mm. long; leaves ovate or ovate-oblong, 8 to 12 cm. long, 4 to 7 cm. wide, acuminate, rounded or cordulate at base, serrulate, membranous, or subcoriaceous, glabrescent above, short-hirtellous beneath; peduncles solitary, 5 to 7 cm. long; bracts oblong-lanceolate, 2 to 3 cm. long, 0.8 to 1 cm. wide, acute, finely pubescent, green; flowers 4 to 6 cm. wide; calyx tube campanulate; sepals lanceolate, 2.5 to 3 cm. long, 5 to 8 mm. wide, carinate, the keel terminating in an awn about 2 mm. long, purplish; petals oblong-lanceolate, 1.5 to 2 cm. long, 4 to 6 mm. wide, obtuse, purplish; corona filaments in several series, the outermost filiform, 2.5 to 3.5 cm. long, radiate, purple at base, white toward apex, those of the succeeding 3 or 4 series liguliform, 1 to 2 mm. long, banded with purple and white, those of innermost series 8 to 10 mm. long, connate at base; operculum membranous,

about 3 mm. high, erect, denticulate or subentire; limen cupuliform, about 4 mm. high, closely surrounding base of gynophore; ovary ellipsoidal, glabrous; fruit ovoid or subglobose, 5 to 9 cm. long, 3.5 to 5 cm. in diameter, glabrous, lemon-yellow, edible; seeds flattened, cuneate, 6 to 7 mm. long, 4 to 5 mm. wide, tridentate at apex, reticulate with 20 to 25 reticulations to each face.

TYPE LOCALITY: "Surinam," but in view of other elements in Linnaeus' description the type locality should be considered as Veracruz, Mexico.

ILLUSTRATIONS: Amoen. Acad. 1: *pl. 10, f. 1*; Martyn, Hist. Pl. Rar. *pl. 34*; Jacq. Hort. Bot. Vind. 1: *pl. 10*; Cav. Diss. *pl. 279*; Bot. Mag. 18: *pl. 651*; Bot. Cab. 2: *pl. 195*.

DISTRIBUTION: Eastern Mexico to Costa Rica.

MEXICO: *Linden 894* (Gen, K). Tlacotalpan, *Hahn 143* (P). Lizardo, *Wawra 293* (V).—Tamaulipas: *Berlandier 112* (Gen, P, V), *183* (Gen, P). Gómez Farias, *Palmer 339* (N).—San Luis Potosí: *Rascón, Palmer 655* (G, Mo, N). Tanquián, *Seler 272* (B).—Veracruz: Tuxpán, *Wawra 726* (V). Tantoyuca, *Ervendberg 226* (Bo, G, Gen, P). Mirador, *Liebmann 4117* (B, Cop). Misantla, *Liebmann 4116* (Cop). Cajadero, *Liebmann 4118* (Cop, V), *4119* (Cop, N). Zacuapan, *Purpus* in 1924 (N), *15300* (Mich). Santa Lucrecia, *Mell 523* (N, Y). Córdoba, *Sessé & Mociño 4447* (Bo, Ma, type of *P. denticulata*), *4448* (Ma); *Bourgeau 2229* (Bo, P). Veracruz, *Houston* in 1731 (BM, type).—Puebla: Metlaltoyuca, *Goldman 36* (G, N). Chinantla, *Galeotti 3673* (Bo, Brux, Gen, P).—Tabasco: San Juan Bautista, *Rovirosa 129* (N, Ph).—Chiapas: Palenque, *Seler 5493* (B, N).

GUATEMALA: Xalaoc, *H. Johnson 563* (N).—Alta Verapaz: Secanquím, *Pittier 174* (N). Semacoch, *Goll 267* (N). Finca Mocca, *H. Johnson 59* (N).

BRITISH HONDURAS: *Schipp 143* (Gen). Tower Hill, *Karling 6* (N, Y). Toledo, *Peck 791* (Y). El Cayo District, *Bartlett 12082* (N), *13004* (N), *13038* (N); *Chanek 42* (Mich). Belize River, *Lundell 3931* (N), *3932* (N), *4111* (N). Corozal, *Lundell 4739* (Mich); *Gentle 427* (N), *454* (N).

HONDURAS: San Pedro Sula, *Thieme 5243* (N). Tela, *Standley 54374* (N), *54764* (N). Lancetilla, *Chickering 41* (Mich).

COSTA RICA: Shirores, Talamanca, *Tonduz 9190* (Brux, N), *9328* (N). Tilarán, *Standley & Valerio 46091* (N).

This is *Passiflora* No. 1 in the *Amoenitates* and the *Species Plantarum*. The first reference in the *Species Plantarum* is to the *Amoenitates*, and the figure there shown (p. 10, f. 1) clearly represents the plant that has commonly passed as *P. serratifolia*. This figure evidently was derived from Martyn's illustration (likewise cited in the two Linnean works) of a Houston plant from Veracruz, Mexico, a specimen of which is now in the British Museum. The habitat "Surinam" given by Linnaeus can be traced to Tournefort's brief description (Inst. 241) of "*Granadilla sirinamensis*, folio oblongo serrato," quoted in the *Amoenitates* but omitted from the *Species Plantarum*. The Tournefort description refers perhaps to the common Guiana plant, *P. coccinea* Aubl. Masters lists specimens from Martinique and Surinam as *P. serratifolia*. There is a sheet of *P. serratifolia* in the Paris herbarium labeled "Martinique—M. Bélanger, 1857-1860," and one in the Berlin herbarium labeled "Surinam," without precise locality data or name of collector. I believe that these represent cultivated plants or that there has been a confusion of locality data, and that the species does not occur naturally outside of Mexico and Central America.

LOCAL NAMES: "Injito amarillo" (Tabasco); "amapola," "granadilla del monte" (Central America).

225. *Passiflora dasyadenia* Urban, Symb. Ant. 3: 328. 1902.

Stem terete, the older portions glabrous, the younger densely ferruginous-tomentulous; stipules linear-subulate, 5 to 7 mm. long, early deciduous; petioles 1.5 to 5 cm. long, subquadrangular, biglandular below middle, the glands sessile, minute, contiguous, rarely a third gland borne near apex of petiole; leaves ovate or ovate-lanceolate, 6 to 13 cm. long, 3.5 to 6 cm. wide, rounded or truncate at apex (or the lower sometimes 3-lobed, the lobes oblong, the lateral about half as long and half as wide as the middle lobe, ascending), rounded or cordulate at base, repand-dentate, 3-nerved (middle nerves prominent), strongly reticulate-veined (veins impressed above), sparingly pilosulous above, densely short-pilosulous on nerves and veins beneath, coriaceous; peduncle up to 4 cm. long; bracts ovate, about 1.5 cm. long and 8 mm. wide, deciduous, borne about 8 mm. below base of flower; calyx tube short-campanulate; sepals lanceolate, about 2 cm. long and 8 mm. wide, obtuse, aristulate just below apex, green and minutely pilosulous without; petals linear-oblong, about 1.5 cm. long and 4 mm. wide, obtuse, thin-membranous, white; corona filaments in about 7 series, the outermost filiform, 1.5 cm. long, those of the second series liguliform,

3 mm. long, 1-nerved, those of the succeeding 3 series tuberculiform, less than 1 mm., the innermost filiform, about 1.5 mm.; operculum membranous, incurved, fimbriate at margin; limen cupuliform, closely surrounding base of gynophore; ovary globose, densely brown-tomentose; fruit subglobose 3 to 4 cm. in diameter; seeds obovate, about 5 mm. long, 3 mm. wide, terminating in a mucro nearly 2 mm. long, finely reticulate.

TYPE LOCALITY: El Ají, Cuba.

DISTRIBUTION: Western Cuba.

CUBA: El Ají, *Eggers* 4670 (B, type, P).—Pinar del Río: Sierra de Anafe, *León* 2855 (N), 8808 (HS), 8811 (HS); *Roig & León* 4708 (HV); *Wilson & León* 11534 (N, Y).—Habana: *Delessert* (Gen). Isle of Pines, *Britton*, *Britton & Wilson* 15476 (F, Y). Loma Peregrina, *León* 13348 (HS).

Recent material sent by Brother León permits description of the flower, the species having originally been described from a specimen in fruit only. The species is evidently related to *P. serratifolia*; in addition to having a much smaller flower with a different coronal structure, it differs in many vegetative details.

Series 7. Setaceae

226. *Passiflora setacea* DC. Prodr. 3: 329. 1828.

Passiflora Sururuca Vell. Fl. Flumin. 9: pl. 88. 1827, without description.

Cieca Sururuca M. Roemer, Fam. Nat. Syn. 2: 141. 1846.

Stem terete, softly brownish-tomentose; stipules setaceous, about 5 mm. long, soon deciduous; petioles up to 3 cm. long, bearing near base a pair of saucer-shaped, sessile glands about 1 mm. wide; leaves 5 to 8 cm. long, 6 to 10 cm. wide, 3-lobed to slightly below middle (lobes oblong or lance-oblong, 1.5 to 3.5 cm. wide, acute, aristulate, serrulate or subentire), cordulate at base, 3-nerved, membranous or subcoriaceous, glabrous, often pilosulous on usually impressed nerves, and sublustrous above, densely and softly brown-tomentose beneath; peduncles up to 9 cm. long, stout, articulate and often curved near apex, tomentose; bracts verticillate, borne about 1 cm. below flower, oblong-lanceolate, 1.5 to 2 cm. long, 5 to 8 mm. wide, acuminate, narrowed at base, serrulate or laciniate-serrulate above middle; flowers up to 10 cm. wide; calyx tube cylindric-campanulate, about 1.5 cm. long, conspicuously purple-lined without; sepals oblong, 3.5 to 4 cm. long, 5 to 7 mm. wide,

obtuse, green, magenta-lined without, white within, carinate (keel terminating in a setaceous awn 1 to 1.5 cm. long), bearing on outside numerous curved, sessile glands; petals linear-oblong, 2 to 2.5 cm. long, 5 to 6 mm. wide, white, magenta-lined; corona filaments in a single series, about 1 cm. long, subulate, fleshy, white, transversely banded with blue(?); operculum membranous, tubular, erect, fimbriate in upper third; limen cupuliform, loosely surrounding base of gynophore; ovary ellipsoidal, glabrous; fruit ovoid, about 4 cm. long, 3 cm. in diameter, the pericarp coriaceous; seeds obovate, about 5 mm. long, 3 mm. wide, finely reticulate.

TYPE LOCALITY: Rio de Janeiro, Brazil.

ILLUSTRATIONS: Vell. Fl. Flumin. 9: *pl.* 88; Mart. Fl. Bras. 13, pt. 1: *pl.* 124.

DISTRIBUTION: State of Rio de Janeiro, Brazil.

BRAZIL: *Bowie & Cunningham 12* (BM, type); *Sello* (B); *Curran & Miller 152* (G); *Pohl* (V).—Rio de Janeiro: *Regnell 77* (S). Rio de Janeiro, *Riedel & Luschnath 715* (Brux, N); *Miers 3463* (BM, K); *Gaudichaud 1034* (B, Gen, P); *Glaziou 1538* (Brux, Cop, P); *St. Hilaire 403* (P); *Weddell 583* (Gen, P); *Warming 1179* (Cop), *1183* (Cop); *Ackerman* (Brux). Organ Mountains, *Gardner 47* (BM, Gen, K, P, V, Y). Serra da Bica, *Ule 4458* (B). Corcovado, *Mosén 2505* (S); *Dusén 5062* (G, S). Aqueduct, *Mikan* (V).

Harms placed this species in a monotypic subsection (No. 1) of *Granadilla*. The presence of glands on the sepals suggests *P. Ernesti*, but the coronal structure is dissimilar.

LOCAL NAME: "Sururuca."

Series 8. **Pedatae**

227. ***Passiflora pedata*** L. Sp. Pl. 960. 1753.

(?) *Passiflora helleborifolia* Wallis ex Mast. in Mart. Fl. Bras. 13, pt. 1: 622. 1872.

Plant finely and densely pilosulous throughout; stem subangular, striate; stipules linear-subulate, 5 to 10 mm. long, subfalcate; petioles 1.5 to 4 cm. long, biglandular at or below middle, the glands stipitate; leaves pedately 3-parted, the middle leaflet oblong, up to 10 cm. long and 4 cm. wide, unlobed, tapering to a petiolule 5 to 10 mm. long, the lateral leaflets 3-parted to base, the segments oblong, slightly smaller than the middle leaflet, the common petiolule up to 5 mm. long, the leaflets and segments acuminate, denticulate; peduncles up to 5 cm. long, stout; bracts oblong or ovate, up to 5 cm. long and

3.5 cm. wide, laciniate-fimbriate; flowers up to 8 cm. wide; calyx tube campanulate; sepals oblong-lanceolate, 3 to 3.5 cm. long, 1 to 1.5 cm. wide, cucullate, long-awned dorsally just below apex, green without, light blue or violet within; petals linear-lanceolate, as long as the sepals, obtuse, light blue or violet; corona filaments purple, with paler bands, in several series, the outermost narrowly ligulate, 1 to 2 cm. long, about 1 mm. wide, transversely banded with purple and white, those of the second series slightly longer, dilated to 2 mm. wide below middle, crispate at apex, those of the succeeding series capillary, 1 to 1.5 mm. long; operculum membranous, incurved, the margin erect, densely fimbriate; limen cupuliform, about 4 mm. long, denticulate; ovary ovoid, tomentellous; fruit globose, about 4 cm. in diameter, yellow; seeds obovoid, about 4 mm. long, 3 mm. wide, and 2 mm. thick, coarsely reticulate.

TYPE LOCALITY: "Dominica" (near Miragoan, Haiti; type collected by Plumier).

ILLUSTRATIONS: Amoen. Acad. 1: *pl. 10, f. 22*; Plum. Pl. Amer. *pl. 81*; Descourtilz, Fl. Pitt. Méd. Antill. 5: *pl. 351*.

DISTRIBUTION: Cuba, Hispaniola, Trinidad, Surinam, British Guiana, and northernmost Brazil.

CUBA: *De la Sagra* 8 (P), 74 (P), 314 (Gen), 566 (Gen); *Read* (B); *Wright* 2600 (B, Bo, G, HA, S, Y). Santa Elena, *Poeppig* in 1823 (V).—Habana: *Jacquin* (Ma).—Pinar del Río: Puerto Aldente, *De la Sagra* in 1836 (N, P). Pinar del Río, *Baker & Abarca* 3700 (B, HV). Los Palacios, *Shafer* 11682 (Y).—Santa Clara: La Sierra, *Jack* 7729 (N, Y).

HAITI: Massif de la Hotte, *Ekman* H9033 (N); *Eyerdam* 355 (N, Y).

TRINIDAD: *Thompson* (Gen). Tetrans Bay, *Trinidad Herb.* 11901 (K, T, Y).

SURINAM: *Hostmann*(?) 633 (Ut).

BRITISH GUIANA: *Schomburgk* 339 (B, Bo), 633 (Brux, Gen, K, N, Ut, V). Rupununi River, *Jenman* 5538 (K).

(?) COLOMBIA: *Mutis* 2808 (Ma, N). The specimens in the Mutis Herbarium were largely collected in Colombia, but a few have been found that are obviously of West Indian or Ecuadorean origin.

BRAZIL: Amazonas: Rio Branco, *Kuhlmann* 3416 (N, S, Ut); *Ule* 7637 (B, Go, K).

In the form of its leaves *P. pedata* is unlike any other *Passiflora* except *P. cirrhiflora*, a species of a totally different relationship.

LOCAL NAME: "Güirito de pasión" (Cuba).

227a. *Passiflora pedata* var. *stipularis* Killip, Journ. Wash. Acad. Sci. 14: 114. 1924, as subspecies.

Stipules spatulate, 8 to 12 mm. long, 5 to 7 mm. wide, fimbriate-laciniate nearly to base. Otherwise as in the typical form.

TYPE LOCALITY: Mene Grande, Zulia, Venezuela.

DISTRIBUTION: Cuba and Venezuela.

CUBA: Pinar del Río: Sierra Mendoza, *Shafer 11132* (B, Y). Pinar del Río, *Roig 3849* (Y).

VENEZUELA: Zulia: Mene Grande, *Pittier 10609* (G, N, type, Y).

Series 9. *Incarnatae*

228. *Passiflora cincinnata* Mast. Gard. Chron. 1868: 966. 1868.

Passiflora corumbaensis Barb. Rodr. Pl. Mattogross. 27. pl. 10. 1898.

Passiflora cincinnata var. *imbricata* Chod. & Hassl. Bull. Herb. Boiss. II. 4: 62. 1903.

(?) *Passiflora cincinnata* var. *minor* Hoehne, Comm. Linh. Tel. Estrat. Mattogross. Annex. 5, Bot. 1: 70. 1910.

Passiflora perlobata Killip, Journ. Wash. Acad. Sci. 12: 331. 1922.

Plant usually essentially glabrous throughout, rarely softly pilosulous; stem terete or subangular; stipules linear-subulate, 6 to 10 mm. long, 1 mm. wide, entire, or finely serrulate toward apex; petioles 1.5 to 4 cm. long, biglandular about 1 cm. from base, the glands about 2 mm. in diameter, sessile; leaves palmately 3-5-lobed, or 3-5-parted to base (if 3-lobed or 3-parted the lateral segments usually more or less deeply bilobed), the lobes (or leaflets) oblong or ovate-oblong, 3 to 8 cm. long, 2 to 5 cm. wide, rounded or acute at apex, often mucronulate, finely serrulate, crenate-serrulate, or subentire, dark green above, paler beneath, the terminal segment rounded at base, petiolulate (petiolule sometimes winged), the lateral segments (or lobes) oblique at base, sessile; peduncles 2 to 6 cm. long, stout, terete; bracts ovate, 2 to 3.5 cm. long, 1.5 to 2.5 cm. wide, obtuse, glandular at base, concave, minutely tomentulose; flowers 7 to 12 cm. wide; sepals oblong-lanceolate, obtuse, 3 to 5 cm. long, 1 to 2 cm. wide, subcoriaceous, green without, pinkish blue or violet

within, keeled on outer surface, the keel terminating in an awn 2.5 mm. long; petals linear-lanceolate or spatulate, 2.5 to 3 cm. long, 0.8 to 1 cm. wide, obtuse, membranous, pinkish blue or violet; corona filaments in several series, the outer filiform or narrowly ligulate, long-tapering, 2 to 4 cm. long, deep purple in lower half, faintly banded with pinkish blue, pale blue at center, blue in upper half, those of the next series linear, 3 mm. long, white in lower half, those of the succeeding 3 or 4 series capillary, 1.5 to 2 mm. long, pale blue and white; operculum membranous at base, filamentose above, the filaments very numerous, 8 to 9 mm. long, spatulate, white below, blue at apex; nectar ring annular, 1.5 mm. from base of gynophore; limen cupuliform, closely surrounding gynophore base, about 7 mm. high; ovary globose, glabrous; fruit ovoid, 5 cm. long, 3 cm. wide; seeds ovate, 5 to 6 mm. long, 4 mm. wide, coarsely reticulate.

TYPE LOCALITY: Crato, State of Alagôas, Brazil.

ILLUSTRATIONS: Gard. Chron. 1868: 966; Bot. Mag. 94: *pl.* 5737; Trans. Linn. Soc. 27: *pl.* 65, *f.* 4, 5; Engl. & Prantl, Pflanzenfam. ed. 2, 21: 495, *f.* 229, *B, C*; Barb. Rodr. Pl. Matto Grosso. *pl.* 10; Contr. Jard. Bot. Rio de Janeiro 1: *pl.* 1.

DISTRIBUTION: Pernambuco, eastern Brazil, south to Paraguay and Argentina, west to eastern Bolivia; at low elevations. — Also in Venezuela and Colombia, where perhaps introduced, but well established.

VENEZUELA: *Karsten* (V). San Antonio, San Cristóbal, *Vivas* 6 (N, type of *P. perlobata*).—Lara: Barquisimeto, *Pittier* 11183 (G, N, Y).

COLOMBIA: Norte de Santander: Between Chinácota and La Esmeralda, 1,200 meters, *Killip & Smith* 20879 (A, G, N, Y).

BOLIVIA: *Bridges* (BM). Parapiti, *Herzog* 1199 (B, S).—Santa Cruz: *Herzog* 636 (B). Cordillera de Santa Cruz, *Werdermann* 2700 (S).—Tarija: Chiquiaca, *Fiebrig* 2701 (B, Gen).

BRAZIL: *Claussen* 147 (Bo); *Tamberlik* (V).—Pará: Ilha Mexiana, Japúa, *Guedes* 2483 (Go).—Piauhy: Serra Branca, *Ule* 7165 (B).—Ceará: Serra Araripe, *Löfgren* 583 (S). Fortaleza, *Drouet* 2518 (N). Serra da Ibiapaba, *Dahlgren* 950 (F). Crato, *Swallen* 4325 (N).—Pernambuco: Victoria, *Pickel* 4228 (N). Tapera, *Pickel* 2358 (N), 2516 (N), 2548 (N).—Alagôas: Crato, *Gardner* 1025 (BM), 1315 (BM), 1630 (BM, K, type, V, Y).—Matto Grosso: Campo Grande, *Chase* 10860 (N). Corumbá, *Chase* 11111 (N); *Malme* 3041 (N, S); *Robert* 780

(BM). Cuyabá, *Lindman A3483* (S); *Malme 1220B* (S); *Pilger 184* (B), *218* (B); *Moore 917* (B, BM), *961* (B, BM, Y).—Minas Geraes: *Claussen 382* (BM, Gen, P, S).—Rio de Janeiro: Carandahy, *Glaziou 12740* (B, Cop, Gen, P).—São Paulo: *St. Hilaire 753* (P).—Santa Catharina: *Ule 1669* (P).

PARAGUAY: Itaguá, *Hassler 1332* (Bo, P, Y). Río Apa, *Hassler 8130* (A, B, BM, Bo, type of *P. cincinnata* var. *imbricata*, Gen, P, V); *Fiebrig 4804* (B, BM, Gen, K). Cordillera de Altos, *Hassler 3339* (B, Bo, Gen, P, V). Bahía, *Anisits 2271* (S). Asunción, cultivated, *Lindman A1755* (S). La Trinidad, *Balansa 2204*, in part (Bo).

ARGENTINA: Salta: Tartagal, *Venturi 7629* (N).—Formosa: *Jørgensen 2617* (G, Mo, N); *Meyer 945* (N).

These specimens show much variation in the shape of the leaves, and it now seems impossible to maintain as a separate species the Venezuelan plant described as *P. perlobata*. This handsome vine we found well established along the trail between Chinácota and La Esmeralda, in eastern Colombia.

LOCAL NAMES: "Pachis" (Bolivia); "maracujá," "tubarão" (Brazil).

229. *Passiflora filamentosa* Cav. Diss. 10: 461. *pl.* 294. 1790.

(?) *Passiflora cuneifolia* Cav. Diss. 10: 460. *pl.* 292. 1790.

Plant glabrous or minutely villosulous; stem terete; stipules dolabriform, 3 to 4 mm. long, 1 to 1.5 mm. wide, aristate, serrulate on one side, very soon deciduous; petioles up to 4 cm. long, biglandular above middle, the glands sessile or subsessile; leaves 4 to 8 cm. long, 6 to 12 cm. wide at greatest width, normally palmately 5-lobed about four-fifths their length (occasionally one or both of the lowest lobes merged into the adjacent lobe so that the leaf is 4-3-lobed, the lobes oblong-lanceolate, 1 to 3 cm. wide, acuminate, serrulate, usually minutely glandular in the sinuses), cordulate at base, membranous, sublustrous above, glabrous or minutely villosulous; peduncles up to 5 cm. long; bracts ovate or ovate-spatulate, 1 to 2 cm. long, 8 to 12 mm. wide, rounded or acutish at apex, narrowed at base, serrulate except often in lower half; flowers up to 8 cm. wide; calyx tube campanulate; sepals narrowly oblong, 8 to 10 mm. wide, obtuse, white, green-keeled without, the keel terminating in a subulate awn about 3 mm. long; petals subequal to or slightly longer than the sepals, white; corona filaments filiform, in several series, those of the 2 outer series radiate, longer than to half as long as the sepals,

banded with blue and white, the filaments of the inner series densely massed, erect, 2 to 5 mm. long, blue; operculum membranous in lower half, filamentose in upper half; nectar ring annular; limen cupuliform; ovary ovoid, tomentulous; fruit globose, about 4 cm. in diameter, very acid, the pericarp brittle; seeds obcordate, about 10 mm. long, 7 mm. wide, strongly flattened, broadly wing-margined, punctate at center.

TYPE LOCALITY: "America," the type seen at Madrid.

ILLUSTRATIONS: Cav. Diss. 10: *pl.* 294; Bot. Mag. 46: *pl.* 2023; Bot. Reg. 7: *pl.* 584.

DISTRIBUTION: Probably central Brazil.

BRAZIL: Minas Geraes: Serra da Gramma, 1,000 meters, Chase 9548 (N).

The taxonomic position of this species is doubtful. The broadly winged seeds at once suggest a close relationship with *P. quadrangularis*, but in no other detail are the two species alike. The shape and serrulation of the leaves are strongly suggestive of *P. serrato-digitata*, but the bracts, more like those of *P. edulis*, and the coronal arrangement are quite different. Masters placed the species near *P. violacea* and *P. amethystina*, in the group with large, foliaceous, subreniform, persistent stipules, but the stipules are very small and early deciduous. In the present treatment *P. filamentosa* is placed near *P. cincinnata*, though it differs in several important details. Perhaps it is a hybrid between *P. caerulea* and *P. serrato-digitata*.

Passiflora filamentosa has been frequently cultivated in Europe, but, as Masters observed, specimens of positively native origin are very rarely found in herbaria.

The type, in the Cavanilles Herbarium, is in a fine state of preservation, agreeing perfectly with Mrs. Chase's specimen from Minas Geraes, which was collected in a very dense jungle, with every indication that the plant was native. Regarding the origin of the type specimen Cavanilles says, "In America. Colui in horto Issy. Exc. Ducis ab Infantado."

Passiflora cuneifolia, considered by Masters as possibly identical with *P. edulis*, I take to be a form of *P. filamentosa* with 3-lobed leaves, though perhaps it is a hybrid between *P. filamentosa* and *P. caerulea*.

230. *Passiflora recurva* Mast. in Mart. Fl. Bras. 13, pt. 1: 608. 1872.

Plant glabrous throughout; stem subangular; stipules linear-subulate, about 3 mm. long, soon deciduous; petioles 1 to 2.5 cm.

long, biglandular near base, the glands orbicular, sessile; leaves 3-lobed two-thirds to three-quarters their length (lobes oblong, 3 to 6 cm. long, 1 to 3 cm. wide, rounded, almost truncate at apex, glandular in sinuses between lobes, the middle lobe slightly longer than the ascending lateral lobes), subcordate at base, entire at margin, subcoriaceous, the nerves and veins impressed above; peduncles up to 4 cm. long, recurved; bracts oblong-lanceolate, about 1 cm. long and 5 mm. wide, acute, narrowed at base, 1-nerved, borne about 1 cm. below base of flower; calyx tube campanulate; sepals oblong, about 1.5 cm. long and 5 mm. wide, obtuse, concave, carinate, the keel winged, terminating in a horn 4 to 5 mm. long; petals linear-oblong, slightly shorter than sepals; corona filaments in several series, the outermost about 1 cm. long, slender, radiate, the inner erect, very short; operculum membranous, filamentose above; ovary ovoid, glabrous.

TYPE LOCALITY: Rio Preto, State of Pernambuco, Brazil.

DISTRIBUTION: Known only from the type locality in eastern Brazil.

BRAZIL: Pernambuco: Rio Preto, *Gardner 2877* (K, type).

This species is intermediate between the series *Laurifoliae* and *Lobatae*, having the narrow stipules of the former and leaves shaped like those of many species of the latter.

231. *Passiflora prolata* Mast. Bot. Jahrb. 8: 219. 1887.

Stem obtusely angular, glabrous or puberulent; stipules linear-setaceous, 4 to 15 mm. long, deciduous; petioles 1 to 2 cm. long, 2-4-glandular near middle, the glands subsessile; leaves 3-lobed to middle, 5.5 to 12 cm. along midnerve, 5 to 9 cm. along lateral nerves, 6 to 13 cm. wide (lobes lanceolate or oblong-lanceolate, caudate-acuminate), rounded or cordulate, serrulate, membranous or subcoriaceous, glabrous, or finely puberulent beneath; peduncles 3 to 4 cm. long; bracts free to base, ovate-lanceolate, 4.5 to 5 cm. long, 1.5 to 2 cm. wide, entire, membranous, green, glabrous or puberulent; flowers 5 to 7 cm. wide; calyx tube campanulate; sepals oblong, 2 to 2.5 cm. long, 8 to 10 mm. wide, dorsally long-aristate just below apex, white within; petals oblong-spatulate, slightly shorter than the sepals, obtuse, white; corona filaments filiform, purple, in several series, those of the 2 outer series about 2 cm. long, the innermost half as long, the intermediate ones very short; operculum membranous, arising at base of tube, cleft into numerous linear-

oblong divisions; limen cup-shaped, closely surrounding base of gynophore, lobulate; ovary ellipsoidal, glabrous.

TYPE LOCALITY: Guatemala.

DISTRIBUTION: Known only from Guatemala.

GUATEMALA: Petén: Between Los Arroyos and Yal'och, *Bartlett 12840* (Mich).—Sololá: Sultán, 2,000 meters, *Lehmann 1630* (B, fragment, Bo, type).

This rare species has long been known only from the single specimen in the Boissier Herbarium and the fragment at Berlin. I am referring the Bartlett collection to *P. prolata* with some hesitation, as the stem and under surface of the leaves are puberulent and the petiolar glands are not quite as in the type. It comes, moreover, from the lowlands.

The large bracts are suggestive of those of *P. Nelsoni* and *P. platyloba*, but they are free to the base and readily become detached from the peduncle.

232. *Passiflora incarnata* L. Sp. Pl. 959. 1753.

Granadilla incarnata Medic. Malvenfam. 96. 1787.

Passiflora Kerii Spreng. Syst. Veg. 3: 39. 1826.

Passiflora incarnata var. *integriloba* DC. Prodr. 3: 329. 1828.

Passiflora edulis var. *Kerii* Mast. Trans. Linn. Soc. 27: 637. 1871; in Mart. Fl. Bras. 13, pt. 1: 610. 1872.

Plant glabrous or usually finely pilosulous; stem terete, the younger portions angular; stipules setaceous, 2 to 3 mm. long, very early deciduous; petioles up to 8 cm. long, biglandular at apex, the glands suborbicular, sessile; leaves 6 to 15 cm. along midnerve, 5 to 12 cm. along lateral nerves, 7 to 15 cm. between apices of lateral lobes, 3-lobed from three-quarters to four-fifths their length (lobes ovate-lanceolate or oblong-lanceolate, 2 to 5 cm. wide, acute or acuminate, the middle lobe narrowed at base, rarely the lateral lobes bilobate), cordulate, finely serrate, 3-nerved, membranous, dark green above, glaucescent beneath; peduncles up to 10 cm. long, stout; bracts spatulate or oblong, 4 to 7 mm. long, 2.5 to 4 mm. wide, obtuse or acute, minutely glandular-serrulate toward apex, conspicuously biglandular at base, borne about 5 mm. below flower; flowers up to 7 cm. wide; calyx tube short-campanulate; sepals lanceolate-oblong, 2 to 3 cm. long, 0.8 to 1 cm. wide, white, or pale lavender, obtuse, cucullate at apex, slightly carinate, the keel terminating in an awn 2 to 3 mm. long; petals subequal to sepals,

obtuse, white or pale lavender; corona filaments in several series, purple or pink, rarely pure white, those of the outer 2 series filiform, 1.5 to 2 cm. long, crispate at apex, slightly enlarged at base, radiate, those of the succeeding 3 series capillary, about 2 mm. long, radiate or suberect, the innermost series membranous at base, filamentose, the filaments about 4 mm. long, capitellate; operculum membranous, about 2 mm. long, incurved, fimbriate; nectar ring a low ridge halfway between operculum and gynophore; limen cupuliform, closely surrounding base of gynophore, crenulate; ovary ovoid, densely brownish or whitish velutinous-tomentose; fruit ovoid or subglobose, up to 5 cm. long; seeds obovate or nearly obcordate, 4 to 5 mm. long, 3 to 4 mm. wide, truncate at apex, reticulate.

TYPE LOCALITY: Virginia; type seen in the Linnean Herbarium.

ILLUSTRATIONS: Cav. Diss. 10: *pl.* 293; Bot. Reg. 41: *pl.* 332; Trans. Hort. Soc. London 3: *pl.* 3; Bot. Mag. 65: *pl.* 3697; Britt. & Brown, Illustr. Fl. 2: 457; ed. 2, 2: 565; Bailey, Cycl. Amer. Hort. 1220. *f.* 1650; Stand. Cycl. Hort. 2480. *f.* 2768; Britt. Fl. Bermuda 252.

DISTRIBUTION: Virginia to Missouri, south to Florida and Texas; also in Bermuda. Introduced farther north in the United States. The following list of specimens is only a partial one, these being selected with a view to showing the distribution of the species by states.

PENNSYLVANIA: Westmoreland County, *Pierron* (Cop, N).

DISTRICT OF COLUMBIA: *Leonard* 471 (N, Roch). Cultivated, *Rose* in 1892 (N); *Vasey* in 1875 (N).

VIRGINIA: *Clayton* (Gronovius Herbarium, BM). Northwest, *Kearney* 1535 (N). Dismal Swamp, *Hotchkiss* 1389 (N). Belfield, *Heller* 1006 (N).

NORTH CAROLINA: Wilmington, *Coville* 128 (N). Church's Island, *McAtee* 1216 (N). Waynesville, *Standley* 5707 (N). Biltmore, *Biltmore Herbarium* 1326 (N), 1326b (N). Fayetteville, *Biltmore Herbarium* 1326c (N). Neuse River, *McCarthy* in 1884 (N).

SOUTH CAROLINA: Porcher's Bluff, *Mearns* 1 (N). Anderson, *Davis* 7833 (N). Batesburg, *McGregor* 45 (N).

GEORGIA: Thompson's Mills, *Allard* 175 (N). Clarke County, *Harper* 92 (N).

FLORIDA: Fort Pickens, *Tracy* 8726 (N, Penn). Eustis, *Nash* 414 (N). Tavarex, *Nash* 2010 (N). Jacksonville, *Curtiss* 971 (N),

4331 (N), 4834 (N). Dade County, *Small, Mosier & Carter 6769* (N, S). Clarcona, *Pieters 93* (N). Lakeland, Polk County, *McFarlin 5823* (N). Merritt Island, *Swallen 198* (N).

ILLINOIS: "Southern Illinois," *Guba* in 1922 (Penn).

KENTUCKY: *Singer 369* (N); *King 306* (N).

TENNESSEE: Wolf Creek Station, *Kearney 728* (N). Knoxville, *Ruth 408* (N). Reelfoot Lake, *Swallen 2138* (N).

ALABAMA: Marshall County, *Milligan* in 1872 (N).

MISSISSIPPI: Oktibbeha County, *Pollard 1271* (N).

ARKANSAS: Prescott, *Hollister 41* (N), *45* (N). Hot Springs, *Runyon 1502* (N).

LOUISIANA: Hammond, *Gallup 21* (N). Alexandria, *Ball 421* (N).

MISSOURI: Springfield, *Standley 8500* (N). Eagle Rock, Barry County, *E. J. Palmer 6321* (N).

OKLAHOMA: Blackstone, *G. W. Stevens 2601* (N). Durant, *Blain* (N).

TEXAS: Palestine, *Tharp 836* (N). Houston, *E. Hall 228* (N).

BERMUDA: Paynter's Vale, *Brown & Britton 406* (Y).

LOCAL NAME: "Maypops." Fruit edible.

This, the only native species of the subgenus *Granadilla* in the United States, ranges from Virginia to Missouri, south to Florida and Texas. The large number of specimens examined show little variation in leaf shape or in the relative lengths of the corona filaments. The peduncles are usually longer and stouter than in its close ally *P. edulis*, though sometimes they are as short as those prevailing in *P. edulis*. The sepals and petals are white or pale lavender; the corona filaments are normally pink or purple, though in the case of a few specimens (*McFarlin 5823*) the collectors have noted that all the flower parts are pure white.

Nomenclature has become much involved due to the confusing of the two closely related species *P. incarnata* and *P. edulis*, and it seems advisable to consider the matter in some detail (see Sabine: "Some account of the purple-fruited passion flower," Trans. Hort. Soc. Lond. 3: pl. 3. 1820).

Linnaeus included in his treatment of *P. incarnata* in the *Species Plantarum* (1753) the plant later described as *P. edulis*, giving as the distribution "Virginia, Brasilia, Peru." His first reference is to the

treatment in the *Amoenitates*, which cites a large number of "pre-Linnaean" references, some of which, including the figure (*pl. 10, f. 19*), certainly apply to *P. edulis*. The only specimen in the Linnean Herbarium which is labeled *P. incarnata* and was in Linnaeus' possession in 1753 is true *P. incarnata*, and there can be no doubt that this name should be applied to the plant native in the United States.

Plate 152 of the *Botanical Register* is headed *Passiflora incarnata* β . After citing several references—which are applicable to both *P. incarnata* and *P. edulis*—Ker distinguishes between the two "varieties" thus:

(α) foliis vage et ad nervos subvillosis; germine villosio; bacca viridi-lutea.

(β) folis nudiusculis; germine glabro; bacco livido-purpurascente. Regarding the distribution of the plant there figured Ker says, "A native of Carolina and Virginia, most probably also of some parts of South America." In a note at the end of the volume Ker states that he later learned that the plant came from Brazil. There can be no doubt that this illustration of *P. incarnata* β represents the plant later described as *P. edulis*. Plate 332 of the *Botanical Register* is headed *Passiflora incarnata*, and Ker evidently intended it to be a representation of his variety α mentioned under Plate 152, the North American plant. The picture is a fairly accurate illustration of *P. incarnata* except for the fact that the margin of the leaves is shown as *entire*. I consider this an error on the part of the artist, for Ker surely would have noted such an important point had the leaves really been *entire*. This inaccurate drawing led to the proposal of *Passiflora Kerii* Spreng. and *Passiflora incarnata* var. *Kerii* DC. (*Passiflora edulis* var. *Kerii* Mast.).

I am following Britton in the selection of *P. incarnata* as the type species of *Passiflora*, and I believe the choice of *P. rubra* (Int. Bot. Congr. 1930, p. 186) an unfortunate one. The latter was chosen because it is "a well-known and widely distributed species, belonging to the largest section, *Decaloba*." Should *Passiflora* be divided into smaller genera, it is highly desirable that the historic name be retained for the showy flowered granadillas, among which are the familiar cultivated species *P. caerulea*, *P. edulis*, *P. quadrangularis*, *P. laurifolia*, and *P. maliformis*. The number of species in *Decaloba* (in the sense of *Plectostemma* of the present treatment) is 115, only slightly greater than in *Granadilla* (96). Moreover, *P. rubra* belongs to a very small group (*Xerogona*) within *Plectostemma*, which might,

conceivably, be treated as a genus. In Roemer's monograph, which would be the basis of any separation of *Passiflora* into small genera, the granadillas are treated as true *Passiflora*, and the smaller-flowered plants, including *P. rubra*, are transferred to *Decaloba*, as a genus. *Passiflora incarnata* was certainly as well known to Linnaeus, the plant being in cultivation at Upsala.

233. *Passiflora edulis* Sims, Bot. Mag. 45: pl. 1989. 1818.

(?) *Passiflora gratissima* St. Hil. Mém. Mus. Hist. Nat. 5: 350. pl. 25, f. 23-26. 1819.

Passiflora pallidiflora Bert. Syll. Pl. Hort. Bonon. 6. 1827.

(?) *Passiflora diaden* Vell. Fl. Flumin. 9: pl. 90. 1827.

Passiflora verrucifera Lindl. Bot. Reg. 26: pl. 52. 1840.

Passiflora Middletoniana Paxton, Mag. 9: pl. 51. 1842.

Passiflora rigidula Jacq. Eclog. Pl. 2: pl. 124. 1844, as to plate.

Passiflora rubricaulis Jacq. Eclog. Pl. 2: pl. 169. 1844.

Passiflora pomifera M. Roemer, Fam. Nat. Syn. 2: 179. 1846.

Passiflora edulis var. *verrucifera* Mast. Trans. Linn. Soc. 27: 637. 1871; in Mart. Fl. Bras. 13, pt. 1: 610. 1872.

Passiflora edulis var. *pomifera* Mast. Trans. Linn. Soc. 27: 637. 1871; in Mart. Fl. Bras. 13, pt. 1: 610. 1872.

Passiflora edulis var. *rubricaulis* Mast. Trans. Linn. Soc. 27: 637. 1871; in Mart. Fl. Bras. 13, pt. 1: 610. 1872.

(?) *Passiflora picroderma* Barb. Rodr. Pl. Nov. Jard. Bot. Rio de Janeiro 1: 1. pl. 1. 1891.

(?) *Passiflora iodocarpa* Barb. Rodr. Pl. Nov. Jard. Bot. Rio de Janeiro 1: 3. pl. 2. 1891.

Passiflora vernicosa Barb. Rodr. Contr. Jard. Bot. Rio de Janeiro 3: 62. pl. 9A. 1902.

Plant essentially glabrous throughout (except ovary), rarely pilosulous throughout; stipules linear-subulate, about 1 cm. long, 1 mm. wide, entire or minutely glandular-serrulate; petioles up to 4 cm. long, biglandular at apex, the glands sessile or short-stipitate; leaves 5 to 11 cm. along midnerve, 4 to 10 cm. along lateral nerves, 7 to 12 cm. between apices of lateral lobes, 3-lobed to below middle (lobes 2 to 4 cm. wide, acute or acuminate, rarely subobtusate, the young leaves occasionally unlobed, ovate), rounded or shallowly cordate at base, serrate, subcoriaceous, lustrous above; peduncles up to 6 cm. long, stout; bracts ovate, 2 to 2.5 cm. long, 1 to 1.5 cm.

wide, obtuse or acute at apex, sharply serrate, pectinate, or almost lacerate, often marginally glandular; flowers up to 7 cm. wide; sepals oblong, 3 to 3.5 cm. long, about 1 cm. wide, corniculate, green without, white within; petals oblong, 2.5 to 3 cm. long, 5 to 7 mm. wide, obtuse, white; corona filaments in 4 or 5 series, those of the 2 outer series filiform or narrowly liguliform, 1.5 to 2.5 cm. long (or as short as 0.5 mm.), crispate toward apex, white, purple at base, those of the succeeding series 2 to 2.5 mm. long, linear-falcate, or reduced to minute dentiform processes; interior of tube between corona and operculum smooth or minutely tuberculate; operculum membranous, incurved, entire, or short-fimbriate; limen cupuliform, entire or crenulate; ovary ovoid or globose, sericeo-tomentose or glabrous; fruit ovoid or globose, 4 to 5 cm. in diameter, yellow, greenish yellow, or purplish; seeds oval, 5 to 6 mm. long, 3 to 4 mm. wide, reticulate, the reticulations minute.

TYPE LOCALITY: Type from a plant cultivated in Europe, probably originally from Brazil.

ILLUSTRATIONS: Amoen. Acad. 1: *pl. 10, f. 19*; Bot. Mag. 45: *pl. 1989*; Bot. Reg. 2: *pl. 152*; Vell. Fl. Flumin. 9: *pl. 89, pl. 90?*; Rev. Hort. IV. 6: *pl. 224*; 1867: 390; 1883: 489; Mart. Fl. Bras. 13, pt. 1: *pl. 122*; Nicholson, Illustr. Dict. Gard. 3: *pl. 30*; Gard. Chron. III. 23: 101; 36: 202; Bailey, Cycl. Amer. Hort. 1222, *f. 1652*; Stand. Cycl. Hort. 2483, *f. 2771*; Contr. Jard. Bot. Rio de Janeiro 3: *pl. 9A*; Popenoe, Man. Trop. Fr. *pl. 10*; Fawc. & Rendle, Fl. Jamaica 5, pt. 3: 234, *f. 93*; Garden 66: 427; Paxton, Mag. 9: *pl. 51*; Ochse, Fruit & Fruiteult. in Dutch E. Ind. *pl. 39. 1931*.

DISTRIBUTION: Throughout Brazil, where apparently native, entering Paraguay and northern Argentina. Common as an escape in Jamaica and known from a few other islands of the West Indies and from Central America, northern Venezuela, and Ecuador. Extensively cultivated in Australia and Hawaii.

GUATEMALA: Guatemala City, cultivated, *Ruano 1278* (N).

COSTA RICA: Jardín del Museo, San José, *Tonduz 17459* (G).

BERMUDA: *Brown, Britton & Worthley 1774* (Y); *Brown, Britton & Bisset 2065* (Y).

CUBA: Habana: Santiago de Las Vegas, cultivated, *Baker 93* (Cop, G, N, Y).

JAMAICA: *Hansen* in 1897 (Cop); *Hart 595* (N).—Blue Mountains, 1,500 to 1,750 meters, *Rothrock 52* (F); *Maxon 10244* (N, Y); *Maxon*

& Killip 1089 (F, G, N, Y); *Nichols* 16 (F, G, N); *G. N. Collins* 82 (N); *Harris* 11953 (F, G, J, N, S, Y); *J. A. Harris* C15534 (Minn); *Britton* 119 (Y); *Fawcett* (J).

PUERTO RICO: Río Piedras, *Stevenson* 6420 (N).

MARTINIQUE: *Duss* 875 (Y).

TRINIDAD: Introduced from Brazil, *Trinidad Herb.* 6067 (B, N, T), 8398 (T).

VENEZUELA: Federal District: Between La Guaira and Caracas, *Bailey & Bailey* 1165 (N). Caracas, *Bailey & Bailey* 1069 (N). Coastal Range, *Pittier* 8138 (N); *Delgado* 21 (N).—Aragua: Colonia Tovar, *Allart* 340 (Gen, N, Y). Maracay, *Pittier* 13922 (N).

ECUADOR: Imbabura: Ibarra, cultivated, *Mexia* 7359 (N).—Tungurahua: Baños, cultivated, *Mexia* 6976 (N).

BRAZIL: *Weddell* 808 (P); *Widgren* 922 (S). Villarina, *Pohl* 3471 (V). Congonhas, *Stephen* in 1843 (Herb. Martius, Brux).—Amazonas: Manaos, *Killip & Smith* 30205 (N, Y); *Labroy* in 1906 (P).—Pará: Ilha do Mosqueiro, *Killip & Smith* 30506 (N, Y). Pará, cultivated, *Ducke* 21313 (N).—Alagôas: *Gardner* 1111 (P), 1313 (BM, Bo, Gen, N, V).—Bahia: *Blanchet* 969 (Gen).—Minas Geraes: *Warming* 1113 (Cop); *St. Hilaire* 680 (P), 976 (P); *Ackermann* in 1832 (Brux). Caldas, *Mosén* 340 (S), 1975 (S), 4157 (S); *Lindberg* 361 (Brux, S); *Regnell II.* 128 (S). Viçosa, *Mexia* 4173 (Gen, N).—Rio de Janeiro: Gavea, *Glaziou* 3019 (Cop). Rio de Janeiro, *Gaudichaud* 1031 (Gen, P); *St. Hilaire* 556 (P); *Riedel & Luschath* 1197 (N). Nova Friburgo, *Glaziou* 17013 (Cop, P). Organ Mountains, *Miers* 4461 (BM); *L. B. Smith* 1518 (N). Serra do Itatiaia, *Chase* 8250 (N); *Dusén* 2099 (S); *Ginzberger* 124 (F). Monte do Cochrane, *L. B. Smith* 1402 (N). Cantagallo, *Peckholt* in 1859 (Brux).—São Paulo: *Löfgren* 1824 (Cop). Apiahy, *Puiggari* 2951 (P). São Paulo, *Burchell* 3226 (K). Bataroca, *Mosén* 2864 (S). Campinas, *Heiner* 94 (S); *Campo Novaes* 842 (N); *Santoro* 684 (N). Alto da Serra, *Dusén* in 1912 (S).—Paraná: Jacarahy, *Dusén* 6638 (BM, N, S), 6783 (S), 15512 (S). Carvalho, *Dusén* in 1911 (S). Curityba, *Dusén* in 1914 (Ph, S).—Santa Catharina: *Gaudichaud* 289 (P).—Rio Grande do Sul: Porto Alegre, *Lindman* 325 (Gen, N, S); *Czermak* 640 (Gen).

PARAGUAY: Alto Paraná, *Fiebrig* 5444 (Gen, N, P).

ARGENTINA: Misiones: Puerto Aguirre, *Ostén* 8258 (S).

Because of variation in shape and coloring of the fruit, in the length of the corona filaments, and the degree of serration of the

bracts, several species and varieties have been described. Masters reduced all to four varieties but admitted that they freely intergraded. Among the specimens cited above two well marked forms may be observed: in one the filaments of the two outer ranks of the corona are nearly as long as the sepals, the succeeding filaments being dentiform in two distinct rows, and the corona entire; in the other the outer two rows of filaments are less than half as long as the sepals, the succeeding filaments linear-falcate in three closely approximate series, the operculum fimbriate at the margin. The first form is well represented by *Lindman 325*, the second by *Chase 8250*. Differences in vegetative characters, however, do not appear to be correlated with these differences in coronal structure, either in *P. edulis* or in *P. caerulea*, another commonly cultivated species exhibiting the same differences in the length of the two outer ranks of the corona. As many of the herbarium specimens doubtless represent cultivated plants or escapes, it is possible that one of the forms has resulted from the introduction of a strain of some other species. For the present I prefer not to assign formal names to these variants.

Passiflora verrucifera was described as having glands on the sepals near the margin. Otherwise it appears to differ little from the form of *P. edulis* with proportionately longer corona filaments. No specimens that I have examined have these glands, and it is possible that the type of *P. verrucifera* was a hybrid between *P. edulis* and *P. setacea*.

Two species described by Barbosa Rodriguez, *P. picroderma* and *P. iodocarpa*, closely resemble *P. edulis* in vegetative characters. The coronal structure of neither corresponds exactly to that of the two forms mentioned above. Possibly the coronal structure of this species is even more variable than here noted, or perhaps Barbosa's plants are actually distinct species. The types of these apparently are not in existence. *Passiflora vernicosa* Barb. Rodr. is the form of *P. edulis* with proportionately long outer corona filaments.

Passiflora edulis is cultivated in Florida and the West Indies and in South America from Venezuela to Brazil. In many places it has escaped and become well established. In Australia it is the most commonly cultivated species of *Passiflora*, and its fruit is highly esteemed.

It is interesting to note that the late Dr. H. K. W. Kumm, who was engaged in the cultivation of passion-fruit in southern California, developed a fourth generation plant of *P. edulis* with four placentae.

LOCAL NAMES: "Parche" (Venezuela); "maracujá," "maracujá-mirim," "maracujá de doce," "maracujá peroba" (Brazil).

Series 10. *Palmatisectae*

234. *Passiflora palmatisecta* Mast. in Mart. Fl. Bras. 13, pt. 1: 564. 1872.

Stem subangular, cano-hirsutulous or the older portions glabrescent; stipules linear-subulate, 4 to 6 mm. long, deciduous; petioles up to 2 cm. long, glandless; leaves membranous, hispidulous above, cano-hirsutulous beneath, polymorphic, the lower subhastately 3-lobed to below middle, the lobes narrowly oblong, entire, dentate, or often irregularly lobulate, the middle lobe up to 5 cm. long, 1 to 2.5 cm. wide, the lateral lobes half as long; upper leaves 3-parted nearly to base, the segments 2-3-lobed nearly to their base, the lobes linear, less than 5 mm. wide, obtuse, subentire, denticulate, or lobulate-dentate; peduncles up to 2 cm. long; bracts ovate, 2 to 3 mm. long, 1 to 1.5 mm. wide, remotely ciliate-denticulate, hispidulous, verticillate, borne 2 to 5 mm. below base of flower; flowers 3.5 to 4 cm. wide; calyx tube campanulate; sepals ovate-lanceolate, about 10 mm. long, 5 mm. wide, obtuse, dorsally carinate (keel terminating in a short horn), pale green without, white within; petals linear-oblong, slightly longer than the sepals, about 3 mm. wide, obtuse, white; corona in 2 ranks, the filaments narrowly liguliform, equaling the petals, pale green; operculum membranous, about 2 mm. long, horizontal, white, entire at margin; limen cupuliform, about 5 mm. high, erect, closely surrounding base of gynophore, the margin spreading; ovary ovoid, glabrous; fruit ovoid, 2.5 to 3 cm. long, about 1.5 cm. wide, 6-angled, tapering at both ends, stipitate, glabrous; seeds cuneate-oblong, about 6 mm. long, 2.5 mm. wide, subtridentate at apex, truncate at base, finely reticulate.

TYPE LOCALITY: Río Saladella de San Jago, Tucumán, Argentina.

DISTRIBUTION: Southern Bolivia and northwestern Argentina, 550 to 700 meters altitude.

BOLIVIA: El Chaco: Río Pilcomayo, *Fries* 1568 (N, S).

ARGENTINA: Salta: Cerro Negro, *Venturi* 10294 (N).—Catamarca: San Miguel, *Hieronymus & Lorentz* (B).—Tucumán: Burreoyacu, 750 meters, *Stuckert* 12571 (Gen). Presito, 750 meters, *Venturi* 7522 (F, N), 7555 (N), 7694 (BM, G, K, N).—Santiago del Estero: Cerro del Remate, *Venturi* 6043 (N).—Córdoba: Nabor, *Hieronymus & Niederlein* 136 (B). La Rioja: *Hieronymus & Niederlein* 144 (B).

The excellent material obtained by Fries and by Venturi permits a better conception of this species than heretofore has been possible.

The position it should occupy within the genus, however, is still difficult to determine. The shape of the leaves and particularly the indument suggest species of *Plectostemma* section *Cieca*, but the operculum is not plicate and the petioles are glandless. The angular, stipitate fruit suggests *P. gracilis*, also of *Plectostemma*, but the seeds are quite different. Probably Masters' placing of it in *Grandidilla* is the best disposition possible, though here it clearly represents a monotypic section. The corona is definitely 2-ranked, and there is no vestige of a third row of filaments or of tubercles on the smooth inside of the calyx tube. The operculum is entire at the margin, without crenations or undulations of any kind.

Series 11. *Kermesinae*

235. *Passiflora kermesina* Link & Otto, Verhandl. Ver. Gartenb. Preuss. 2: 403. *pl.* 15. 1826.

Passiflora dentata Vell. Fl. Flumin. 9: *pl.* 94. 1827.

Passiflora Raddiana DC. Prodr. 3: 329. 1828.

Decaloba kermesina M. Roemer, Fam. Nat. Syn. 2: 156. 1846.

Decaloba dentata M. Roemer, Fam. Nat. Syn. 2: 156. 1846.

Plant glabrous throughout; stem terete, slender; stipules subreniform, 1 to 2.5 cm. long, 0.5 to 1.2 cm. wide, rounded at both ends, aristulate at apex, glaucous beneath; petioles up to 4 cm. long, bearing 2 to 4 scattered, filiform glands 1 to 2 mm. long; leaves 4 to 8 cm. long, 5 to 10 cm. wide, 3-lobed to slightly below middle (lobes oblong, 1.5 to 3 cm. wide, rounded or acutish, glandular in sinuses), truncate or cordulate at base, membranous, dark green above, glaucescent or reddish beneath; peduncles 9 to 15 cm. long, slender; bracts 3, ovate, 3 to 5 mm. long, 2 to 3 mm. wide, petiolate (petiole 1 to 1.5 mm. long), scattered along upper half of peduncle; flowers 6 to 8 cm. wide (expanded); calyx tube short-cylindric-campanulate, about 1 cm. long, ventricose at base, the sepals and petals at first radiate, at length reflexed, red or scarlet; sepals linear-oblong, 3.5 to 4 cm. long, 0.5 to 0.7 cm. wide, obtuse, ecoriunculate; petals similar to and slightly longer than sepals; corona filaments filiform, violet-purple, densely massed in 3 or 4 series, the outermost about 5 mm. long, the inner barely 3 mm. long, erect; operculum membranous, about 3 mm. high, plicate, bearing a fringe of filaments about 2 mm. long on outer surface just below the crenulate margin; nectar ring annular, fleshy; limen tubular, closely surrounding base of gynophore; gynophore slender, about 2 mm. long; ovary ovoid, glaucous.

TYPE LOCALITY: Rio de Janeiro, Brazil (type a plant cultivated at Berlin).

ILLUSTRATIONS: Verhandl. Ver. Gartenb. Preuss. 2: *pl.* 15; Vell. Fl. Flumin. 9: *pl.* 94; Bot. Reg. 19: *pl.* 1633; Bot. Mag. 63: *pl.* 3503; Paxton, Mag. 1: *pl.* opp. p. 151; Mart. Fl. Bras. 13, pt. 1: *pl.* 126; Nicholson, Illustr. Dict. Gard. 3: 32. *f.* 37.

DISTRIBUTION: Eastern Brazil, from Bahia to Rio Grande do Sul; frequently cultivated in Europe.

BRAZIL: *Gaudichaud* (P); *Sello* (B); *Bowie & Cunningham* 82 (BM); *Raddi* (Gen, type of *P. Raddiana*); *Freyreis* (S); *Mikan* (Brux).—Pernambuco: *Pickel* 2202 (B).—Piauhv: Serra da Lagôa, *Ule* 7465 (B, K).—Bahia: Bahia, *Blanchet* 1747 (BM, Gen), 3303 (B, BM, Bo, Gen, Go, K, V, Y); *Klotzhky* (B).—Minas Geraes: *Schott* (V); *Pohl* (V). Viçosa, 700 meters, *Mexia* 4443a (N).—Rio de Janeiro: Corcovado, *Gardner* 48 (BM, K); *St. Hilaire* 177 (P); *Miers* 3097 (K); *Patschke* 191 (B). Andarahy Grande, *Glaziou* 13912 (B, BM, Gen, K, N, P). Rio de Janeiro, *Widgren* 131 (S); *Riedel & Luschnath* 716 (N).—Rio Grande do Sul: Hamburg-Berg, *Lindman* A591 (S).

The following specimens appear to represent hybrids between *P. kermesina* and *P. caerulea*:

BRITISH GUIANA: *British Guiana Herb.* 130 (BG).

BRAZIL: Rio de Janeiro: Corcovado, *Glaziou* 3018 (Brux, Cop, N, P). Maua, *Ule* 3796 (B).

This and the following seven species have relatively small, dis-sitate bracts and a more or less plicate operculum, characters suggestive of the subgenus *Plectostemma*. The large, showy flowers, the corona, and the limen indicate a closer relationship with *Granadilla*. Possibly these eight species should be placed in a separate subgenus, but certain considerations make this seem inadvisable: *P. Giberti*, which surely is closely related to *P. naviculata*, has a plicate operculum, with a fringe of filaments attached on the outside, but the bracts are verticillate, foliaceous, and borne close to the base of the flower; in other species of *Granadilla* the margin of the operculum is slightly crinkled.

Passiflora Loudoni, a horticultural species, is probably a hybrid between *P. kermesina* and *P. racemosa*.

236. *Passiflora Lehmanni* Mast. Journ. Bot. Brit. & For. 23: 115. 1885.

Plant glabrous throughout; stem terete; stipules semi-ovate, 1.5 to 2 cm. long, about 1 cm. wide, aristulate at apex, rounded at base,

oblique, subcoriaceous; petioles up to 3 cm. long, bearing 2 or 3 subopposite glands 1 to 1.5 mm. long; leaves 3-lobed to within 1 cm. of base (lobes narrowly lanceolate, up to 13 cm. long, 1.5 cm. wide; acuminate), rounded or subcordate at base, entire at margin, subcoriaceous; peduncles 12 to 15 cm. long; bracts narrowly linear, 3 to 4 mm. long, 1 mm. wide or less, scattered; flowers 3 to 4 cm. wide; calyx tube patelliform; sepals linear-oblong, about 1.5 cm. long and 5 mm. wide, obtuse, dorsally corniculate below apex, reddish (when dry) without; petals as long as the sepals; corona filaments filiform, in 4 or 5 series, the outermost about 1.5 cm. long, the others densely massed, about 3 mm. long, capitellate; operculum membranous, erect, about 1 mm. high, plicate toward the lobulate margin; nectar ring annular, fleshy; limen short-tubular, loosely surrounding base of gynophore; ovary ellipsoidal or fusiform, glabrous.

TYPE LOCALITY: Fusagasugá, Colombia.

ILLUSTRATION: Mutis, Icon. Pl. Ined. 26: *pl.* 29.

DISTRIBUTION: Department of Cundinamarca, Eastern Cordillera of Colombia.

COLOMBIA: *Mutis* 705 (Ma, N).—Cundinamarca: Fusagasugá, *Lehmann* 2524 (Bo, K, type). Tena, 2,000 meters, *Lehmann* 6106 (K, N). Viotá, *André* 1739 (K).

Though the flowers of *P. Lehmanni* are smaller and probably not so highly colored as those of *P. kermesina*, their structure appears to be essentially the same. The small, dissitate bracts also indicate a close relationship with that species.

237. *Passiflora trisulca* Mast. Bot. Jahrb. 8: 218. 1887.

Plant glabrous throughout; stipules semi-ovate, 1.5 to 3 cm. long, 0.5 to 1.5 cm. wide, acute and aristate at apex, rounded at base; petioles 3.5 to 5 cm. long, bearing 4 subopposite or scattered, liguliform, often curved glands 1 to 2 mm. long; leaves 8 to 13 cm. long, 12 to 16 cm. wide, 3-lobed to about 2 cm. from base (lobes lanceolate or oblong-lanceolate, 1.5 to 3 cm. wide, acuminate, the sinuses acutish, glandless), truncate or very shallowly cordate at base, subpeltate, 5-nerved, strongly reticulate-veined, membranous or subcoriaceous; peduncles 6 to 7 cm. long; bracts not seen, evidently soon deciduous; flowers 4 to 6 cm. wide; calyx tube short-campanulate; sepals oblong, 5 to 7 mm. wide, dorsally apiculate; petals subequal to sepals; corona filaments in several series, the outermost liguliform, about 1 cm. long, the inner much shorter; operculum

membranous, plicate, about 2 mm. high, erect, crenulate at margin, bearing on outside just below margin a row of filaments; nectar ring fleshy; limen tubular, lobulate; ovary ellipsoidal, glaucous.

TYPE LOCALITY: Santa Bárbara, "Prov. Cauca," Colombia. This may be the Santa Bárbara in the Department of Antioquia, where Lehmann is known to have made collections.

DISTRIBUTION: Central Cordillera of Colombia(?).

COLOMBIA: Antioquia: Santa Bárbara, *Lehmann VIII* (B, Bo, K, type).—Caldas: San José, 1,400 meters, *Pennell 10214* (G, N).

Unfortunately bracts are not present on the type specimen, or on the Pennell plant. The structure of the operculum, however, suggests that this is a near relative of *P. Lehmanni*. From that species it is readily distinguished, however, by less deeply lobed leaves with broader lobes, differently shaped petiolar glands, and much shorter peduncles.

238. *Passiflora Smithii* Killip, Journ. Wash. Acad. Sci. 20:378. 1930.

Plant glabrous throughout; stem terete; stipules semi-ovate or subreniform, 2.5 to 4 cm. long, 1 to 1.5 cm. wide, aristulate at apex, rounded at base, coriaceous; petioles 2.5 to 4 cm. long, 2–4-glandular near middle, the glands tuberculiform, 0.5 to 1 mm. long and thick; leaves 8 to 12 cm. long, 10 to 15 cm. wide, 3-lobed about three-quarters their length (lobes oblong or elliptic-oblong, 2.5 to 3 cm. wide, narrowed to an obtuse apex, minutely glandular-serrulate in the rounded sinuses), subtruncate or cordulate at base, 5-nerved, strongly reticulate-veined, coriaceous or subcoriaceous, glaucous beneath; peduncles 6 to 7 cm. long, slender; bracts narrowly lanceolate, 6 to 8 mm. long, 1.5 to 3 mm. wide, acuminate, sessile, deciduous, borne at separate points near middle of peduncle; flowers about 5 cm. wide; calyx tube broadly campanulate, about 5 mm. long, 10 mm. wide; sepals oblong, about 2 cm. long and 7 mm. wide, obtuse, slightly cucullate, minutely awned dorsally, the awn about 1 mm. long; petals linear-oblong, about 1 cm. long, 4 mm. wide, obtuse; corona filaments in several series, the outermost narrowly liguliform, 0.8 to 1 cm. long, those of the succeeding 3 or 4 series, filiform, about 2 mm. long, minutely capitate; operculum membranous, about 7 mm. high, closely plicate, lacerate-cleft to below middle; nectar ring annular, obscure; limen about 4 mm. high, closely surrounding base of gynophore, irregularly denticulate; ovary ovoid, glabrous; fruit ovoid, about 6 cm. long, 3 to 3.5 cm. in diameter; seeds oblong, about 6 mm. long, reticulate.

TYPE LOCALITY: Mesa de Los Santos, Santander, Colombia.

ILLUSTRATION: Mutis, Icon. Pl. Ined. 26: *pl. 9bis*.

DISTRIBUTION: Eastern Cordillera of Colombia, 1,000 to 1,200 meters altitude.

COLOMBIA: Santander: Mesa de Los Santos, Killip & Smith 15015 (A, G, N, type, Y).—Cundinamarca: "Cerca del Hospicio," Triana 2947, in part (BM, HNC). Peñón, Goudot (P). Sasaima, Pérez 2023 (N).

From *P. trisulca*, to which it appears to be most closely related, this species differs in having less deeply lobed leaves with the lobes obtuse, and short, thick petiolar glands.

Apparently two species are represented by Triana 2947. The plant at Geneva is *P. subpeltata* Ort., but that at the British Museum is quite distinct. A specimen of Triana's in the Herbario Nacional Colombiano, from "Prov. de Bogotá, cerca del Hospicio," is clearly a part of the collection represented in the British Museum. Triana and Planchon cited No. 2947 as *P. stipulata* (*P. subpeltata*, not *P. stipulata* Aubl.). Triana 2946, the type of *P. atomaria*, is also *P. subpeltata*.

239. *Passiflora Watsoniana* Mast. Gard. Chron. n. ser. 26: 648. *f. 127*. 1886.

Plant glabrous throughout; stem terete, wiry; stipules semi-ovate or subreniform, 0.5 to 1.5 cm. long, 0.3 to 1 cm. wide, acutish or rounded, aristulate at apex, rounded at base, denticulate; petioles up to 3 cm. long, very slender, minutely 2-5-glandular, the glands stipitate, scattered; leaves 3 to 6 cm. long, 4 to 8 cm. wide, 3-lobed to slightly below middle (lobes oblong, 1 to 2.5 cm. wide, obtuse or acutish), subtruncate at base, subpeltate, 5-nerved, membranous, green above, reddish purple beneath; peduncles up to 5 cm. long, slender; bracts setaceous, about 2 mm. long, scattered, very soon deciduous; flowers up to 8 cm. wide; calyx tube campanulate, about 4 mm. long; sepals oblong-lanceolate, about 7 mm. wide, obtuse, dorsally awned, green without, white within; petals linear-lanceolate, about 4 mm. wide, obtuse, thin, white; corona filaments filiform, in 5 indistinct series, the outermost about 2 cm. long, purple in lower half, white- and purple-banded above, those of the succeeding 3 series about 4 mm. long, of the inner series 6 to 7 mm. long; operculum membranous, 1.5 mm. high, plicate, bearing on outside just below margin a row of reddish purple filaments about 5 mm. long; nectar ring a dependent, fleshy membrane; limen cupuliform, about

8 mm. high, white, adnate to gynophore except at margin; ovary ovoid, short-stipitate, glaucous-pruinose.

TYPE LOCALITY: Central or southern Brazil; described from a plant cultivated in Kew Gardens.

ILLUSTRATIONS: Gard. Chron. n. ser. 26: 649. f. 127. 1886; Ill. Hort. 36: pl. 74; Garden 33: 194.

DISTRIBUTION: Central or southern Brazil.

BRAZIL: *Collector uncertain* (K, type). From type(?) plant cultivated at Kew Gardens, *Killip 13072a* (N).—São Paulo: Campinas, *Campos Novaes 845* (N).

From *P. kermesina* this species is easily distinguished by the color of its flowers, shorter peduncles, and finer bracts.

A plant, possibly that from which the type specimen was taken, was flowering profusely at the Royal Botanic Gardens, Kew, at the time of my visit in 1925.

240. *Passiflora Eggersii* Harms, Bot. Jahrb. 18: Beibl. 46: 7. 1894.

Stem subangulate, softly pilosulous; stipules semi-ovate or sub-reniform, 8 to 10 mm. long, 4 to 5 mm. wide, cuspidate, rounded at base, entire; petioles up to 3 cm. long, minutely 4–6-glandular above middle; leaves ovate-lanceolate or lanceolate, 8 to 12 cm. long, 4 to 7 cm. wide, acute or acuminate at apex, subtruncate or cordulate at base, entire, 5-nerved, glabrescent above, softly pilosulous beneath; peduncles 10 to 15 cm. long; bracts ovate-oblong, 3 to 4 mm. long, 1.5 to 2 mm. wide, acute, mucronulate, dissitate along upper half of peduncle; flowers red, up to 10 cm. wide when expanded; calyx tube broadly cylindric-campanulate, about 1 cm. long, 1.5 cm. wide, the sepals and petals at first radiate, at length reflexed; sepals lanceolate, 4 to 5 cm. long, 1 to 1.3 cm. wide; petals slightly shorter than the sepals; corona filaments ligulate, in 4 series, reddish purple, the outermost 4 to 5 mm. long, those of the succeeding series 2 to 3 mm. long, pale at tips; operculum membranous, erect, about 2 mm. high, slightly plicate, bearing a row of filaments about 4 mm. long on outer surface just below the crenulate margin; limen short-tubular, closely surrounding base of gynophore; gynophore slender; ovary ovoid-ellipsoidal, glabrous.

TYPE LOCALITY: Bulao (Balao), Ecuador.

DISTRIBUTION: Western Ecuador. A note by Lehmann states that this species occurs in the whole littoral region between Santa Rosa and Naranjal.

DISTRIBUTION: Western Ecuador.

ECUADOR: *Sodiño* (N); *Ruiz & Pavón* (Ma).—Guayas: Balao, *Eggers 14433* (B, type, N).—Oro: Río Pitagongo, near Santa Rosa, *Lehmann 4839* (B, K).—Los Ríos: Cantón Vinces, *Mexia 6578* (N).—Bolívar: San Miguel, *Stevens 200* (N).

This is distinguished from the other species of this section by the indument on the stem and under surface of the leaves. The outer corona filaments are much shorter than in its near relatives.

241. *Passiflora Miersii* Mast. in Mart. Fl. Bras. 13, pt. 1: 599. *pl. 117, f. 1*. 1872.

Plant glabrous throughout; stem terete, wiry, often golden-yellow; stipules semi-ovate, 1 to 2.5 cm. long, 0.5 to 1.2 cm. wide, rounded at both ends, mucronulate at apex, crenulate or subentire, reddish purple when dry, pale at margin, persistent; petioles up to 1.5 cm. long, slender, biglandular in upper third, the glands stipitate; leaves lanceolate or ovate-lanceolate, 3 to 6 cm. long (or the lower up to 8 cm.), 2 to 3 cm. wide, acutish or rounded at apex, truncate or rounded and subpeltate at base, 3-5-nerved, subcoriaceous, claret-colored beneath, dark reddish purple when dry; peduncles 3 to 5 cm. long, slender, articulate about 5 mm. from apex; bracts variable, narrowly ovate, oblanceolate, or linear-setaceous, up to 6 mm. long, and 2 mm. wide, borne about 1 cm. below base of flower, soon deciduous; flowers 4 to 5 cm. wide; calyx tube campanulate, ventricose at base; sepals oblong, 1.5 to 2.5 cm. long, 5 to 7 mm. wide, obtuse, aristate dorsally just below apex, white; petals subequal to sepals, obtuse, white; corona filaments filiform, in 4 series, the outer 2 radiate, 1 to 1.5 cm. long, whitish, barred with purple at base, those of the third series minute, barely 1.5 mm. long, violet, those of the fourth series 5 to 7 mm. long, erect, violet or deep purple; operculum membranous, erect below, the upper half slightly inclined toward gynophore, subpicate, bearing a row of filaments on outer surface just below margin, the filaments 4 to 5 mm. long; limen cupuliform, closely surrounding base of gynophore; ovary ovoid, glabrous, glaucous; fruit obovoid or ellipsoidal, 3 to 4 cm. long, 1.5 to 2 cm. in diameter, the pericarp coriaceous; seeds obovate, reticulate.

TYPE LOCALITY: Organ Mountains, Brazil.

ILLUSTRATIONS: Mart. Fl. Bras. 13, pt. 1: *pl. 117, f. 1*; Gard. Chron. III. 4: 352. 1888; Bot. Mag. 116: *pl. 7115*.

DISTRIBUTION: Eastern Brazil, Minas Geraes to São Paulo.

BRAZIL: *Schwacke* 7427 (B).—Minas Geraes: *Claussen* (K); *St. Hilaire* 225 (P). *Caldas*, *Regnell III.637* (B, N, S); *Mosén* 4148 (S). Between Barbacena and Serra da Mantiqueira, *Warming* 1166 (Cop).—Rio de Janeiro: *Widgren* 328 (S); *Regnell* 78 (S). Organ Mountains, *Miers* (BM, K, type). Santa de Estrella, *Weddell* 717 (P). Serra do Tingua, *Glaziov* 6551a (B, P).—São Paulo: *Burchell* 3919 (K); *Sello* 290 (B). São João de Bôa, *Mosén* 4149 (S). Butantan, *Hoehne* 238 (B).

This is readily distinguished from *P. Eggersii* and *P. Guentheri*, the two other entire-leaved species of this section. The bracts, soon deciduous and not present in several of the specimens examined, vary from linear-setaceous to ovate or oblanceolate, a rather extreme variation within a species.

242. *Passiflora Guentheri* Harms, Notizbl. Bot. Gart. Berlin 10: 811. 1929.

Plant glabrous throughout; stem subterete; stipules semi-oblong, 1 to 2.5 cm. long, 0.5 to 1 cm. wide, mucronate (mucro 3 to 4 mm. long), entire, thick-coriaceous, persistent; petioles 1.5 to 3.5 cm. long, 4-glandular, the glands about 1.5 mm. wide, sessile, 2 borne near apex of petiole, 2 near middle; leaves oblong-ovate or ovate-lanceolate, 7 to 14 cm. long, 3 to 7 cm. wide, acute or subacute at apex, rounded at base, septuplinerved, conspicuously reticulate-veined, thick-coriaceous, bright green above, glaucescent beneath; peduncles solitary, 3 to 4 cm. long; bracts ovate-lanceolate, 6 to 7 mm. long, about 3 mm. wide, acuminate at apex, cordulate, sessile, dissitate near middle of peduncle; flowers about 5 cm. wide; calyx tube broadly campanulate, about 7 mm. long; sepals oblong, 2.5 to 3 cm. long, about 1 cm. wide, obtuse, minutely awned dorsally just below apex (awn barely 1 mm. long), green without, white(?) within; petals oblong, subequal to sepals, obtuse, white(?); corona filaments in 4 series, the outermost filiform, 2 to 2.5 cm. long, radiate, those of the succeeding series 3 to 4 mm. long, capitellate, erect; operculum white, 6 to 7 mm. high, cleft nearly to base into linear, overlapping segments about 0.7 mm. wide; ovary ovoid, glabrous.

TYPE LOCALITY: Mapiri region, San Carlos, Bolivia.

DISTRIBUTION: Known only from type locality, in northern Bolivia.

BOLIVIA: La Paz: Mapiri region, San Carlos, *Buchtien* 906 (907, in error; B, type, N).

Passiflora Guentheri is placed at this point on the basis of the relatively small, dissitate bracts, although it has little resemblance to its entire-leaved associates of this section, *P. Eggersii* and *P. Miersii*. The operculum is remarkable; it is cleft nearly to the base into linear segments, the sides of which overlap, indicating that were it tubular, the upper half would be described as plicate.

Series 12. Imbricatae

243. *Passiflora cuzcoensis* Killip, Journ. Wash. Acad. Sci. 20: 379. 1930.

Plant glabrous throughout; stem terete, or the younger portions subangulate; stipules semi-oblong, 2 to 2.5 cm. long, 0.7 to 0.9 cm. wide, acutish at apex, rounded at base, obscurely crenulate; petioles 2 to 3 cm. long, slender, biglandular in upper third, the glands minute, subulate, 0.5 to 0.8 mm. long; leaves suborbicular in general outline, 3-lobed at apex, 5 to 7 cm. along midnerve, 4 to 6 cm. along lateral nerves (lobes rounded, minutely mucronulate, the middle lobe 2 to 3 cm. wide), rounded or subtruncate at base, entire, 5- (or obscurely) 7-nerved, membranous; peduncles slender, 3 to 3.5 cm. long; bracts 3, subimbricate, unequal (one larger than the others), cordate, 2.5 to 3 cm. long, 2 to 2.5 cm. wide, obtuse, crenate-serrulate toward apex, persistent; flowers about 5 cm. wide; calyx tube campanulate; sepals lance-oblong, about 2 cm. long, 1 cm. wide, obtuse, awned dorsally just below apex, the awn foliaceous, up to 5 mm. long; petals lance-oblong, about 1.5 cm. long and 8 mm. wide, obtuse; corona filaments in 2 series, the outer radiate, about 2 cm. long, very slender, apparently concolorous, the inner (borne about 2 mm. from the outer) filiform, 1.5 to 2 mm. long; operculum membranous, about 2 mm. high, denticulate, bearing on outside just below margin a row of very slender filaments about 1 mm. long; limen cupuliform, closely surrounding base of gynophore; ovary not seen.

TYPE LOCALITY: Marcapata Valley, Cuzco, Peru.

DISTRIBUTION: Known only from type locality in southeastern Peru.

PERU: Cuzco: Marcapata Valley, near Chilechile, *Weberbauer 7872* (B, K, N, type).

The unusual arrangement of the bracts indicates the relationship of this species to *P. sidaefolia* (*P. tetraden*), which it resembles also in the outline of the leaves. The flowers of the two species differ in several details: in *P. cuzcoensis* the sepals are awned, in *P. sidaefolia*

they are without awns, apparently an important difference in the subgenus *Granadilla*; the principal or radiate corona filaments are in a single series and concolorous in *P. cuzcoensis*, in two series and alternately banded with blue and white in *P. sidaefolia*; the inner corona consists of short filaments in *P. cuzcoensis*, of mere tubercles in *P. sidaefolia*.

244. *Passiflora sidaefolia* M. Roemer, Fam. Nat. Syn. 2: 173. 1846.

Passiflora tetraden Vell. Fl. Flumin. 9: pl. 91. 1827 (figure only);

Mast. in Mart. Fl. Bras. 13, pt. 1: 611. pl. 122, f. 2. 1872.

Not *P. tetradena* Vand. (1828).

Plant essentially glabrous throughout; stem terete, slender, wiry; stipules semi-ovate, 10 to 20 mm. long, 6 to 10 mm. wide, acute or subacute at apex, aristate (awn 1 to 3 mm. long), rounded at base; petioles 1 to 3 cm. long, biglandular near middle, usually with a pair of glands near apex also; leaves suborbicular in general outline, 4 to 7 cm. long, nearly as broad, 3-lobed at apex (lobes rounded or subacute at apex, the middle lobe prominent [young leaves often with the middle lobe reduced, hence the leaves shallowly truncate-lobed], the lateral lobes often much reduced), rounded at base, 3 (or obsoletely 5) -nerved, subcoriaceous, lustrous above, green or glaucescent beneath; peduncles solitary, 1 to 1.5 cm. long; bracts cordate-orbiculate or cordate-lanceolate, 2 to 4 cm. long, 2 to 3.5 cm. wide, rounded or subacute at apex, sessile, thin-membranous, pinkish, imbricate, one slightly smaller and borne just below the two others; flowers about 8 cm. wide; sepals oblong-lanceolate, 2.5 to 3 cm. long, 1 to 1.3 cm. wide, obtuse, ecoriuncate; petals similar to the sepals, slightly narrower; corona filaments in 5 series, those of the 2 outer ligulate, filiform at tips, 2.5 to 3 cm. long, white(?), banded with purple, the inner filaments reduced to short, dentiform tubercles; operculum membranous, about 5 mm. high, incurved, crenulate at margin; limen cupuliform, closely surrounding base of gynophore; ovary ovoid, glaucous; fruit globose, about 3 cm. in diameter, the pericarp coriaceous; seeds obovate, about 5 mm. long, 3 mm. wide, closely and finely reticulate.

TYPE LOCALITY: Brazil.

ILLUSTRATIONS: Vell. Fl. Flumin. 9: pl. 91; Mart. Fl. Bras. 13, pt. 1: pl. 122, f. 2.

DISTRIBUTION: Brazil, Minas Geraes to São Paulo.

BRAZIL: Minas Geraes: Viçosa, 1,300 meters, *Mexia 4659a* (Cal). Caldas, *Hoehne 3818* (B).—Rio de Janeiro: Cosmo Velho, *Miers*

(BM). Corcovado, *Glaziou* 6604 (P), 6700 (B, Cop, P); *Kuhlmann* 5248 (S, Ut); *Bailey & Bailey* 755 (N); *Dusén* 5083 (S), 5154 (S); *Mosén* 2506 (S). Nova Friburgo, *Glaziou* 18257 (K). Cantagallo, *Peckholt* 31 (V).—São Paulo: Campinas, *Heiner* 581 (S); *Campos Novaes* 841 (N).

Passiflora sidaefolia is perhaps more closely related to *P. actinia* than is indicated in the present key. The floral structure of the two is very similar, although in *P. actinia* the inner corona filaments and those of the operculum are longer. The leaves of *P. sidaefolia* are slightly lobed, those of *P. actinia* entire.

Series 13. *Simplicifoliae*

245. *Passiflora longipes* Juss. Ann. Mus. Hist. Nat. 6: 111. *pl.* 38, *f.* 1. 1805.

Anthactinia longipes Bory, Ann. Gén. Sci. Phys. Brux. 2: 139. 1819.

Passiflora longipes var. *retusa* Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 152. 1873.

Plant glabrous throughout; stem terete; stipules semi-ovate, 2.5 to 3 cm. long, 1 to 1.5 cm. wide, rounded or acutish and aristulate at apex, rounded at base, oblique; petioles about 1.5 cm. long, slender, 4–6-glandular, the glands stipitate; leaves ovate-oblong, 4 to 8 cm. long, 2 to 4 cm. wide, obtuse or rounded, occasionally emarginate at apex, rounded or cordulate at base; peduncles 5 to 15 cm. long, stout, articulate 0.5 to 1.5 cm. from apex; bracts oblong or oblong-lanceolate, 1 to 2 cm. long, 0.5 to 1 cm. wide, obtuse, mucronulate, borne at point of articulation of peduncle; flowers 8 to 10 cm. wide, red; calyx tube cylindric, 1 to 1.2 cm. long, 2 cm. wide, deeply longitudinally 10-sulcate; sepals linear, 3 to 4 cm. long, 6 to 8 mm. wide, obtuse, radiate, at length reflexed, cucullate, carinate, dorsally awned, the awn about 7 mm. long; petals lanceolate-oblong, 4 to 5 cm. long, 1.3 to 1.5 cm. wide, rounded at apex; operculum membranous, 7 to 8 mm. high, cleft nearly to base into clavate segments which are crenulate along upper margin and terminate in a filiform appendage attached dorsally just below apex; corona filaments in several closely adjacent series, the outer 2 or 3 radiate, 3 to 4 mm. long, the inner erect, 5 to 7 mm. long; nectar ring a narrow ridge; limen cupuliform, sinuate at margin; ovary ovoid.

TYPE LOCALITY: Quindío Mountains, Colombia.

ILLUSTRATIONS: Ann. Mus. Hist. Nat. 6: *pl.* 38, *f.* 1; Mutis, Icon. Pl. Ined. 26: *pl.* 8bis.

DISTRIBUTION: Eastern and Central Cordilleras of Colombia.

COLOMBIA: Norte de Santander: Ocaña, *Kalbreyer 1202* (B, K).—Santander: Las Vegas, *Killip & Smith 15911* (G, N). La Baja, *Funck & Schlim 1384* (Gen, P).—Cundinamarca: Bogotá, cultivated, *Goudot* (P); *Triana* (Gen, K, P), *2943* (BM, type of *P. longipes* var. *retusa*, HNC). Anolaima, *Lindig 610* (BM). Tequendama Falls, *Schultze 66* (B, N).—Tolima: Quindío Trail, *Humboldt & Bonpland* (B, P, type).

This and the next following species are readily distinguished by the stout peduncles and the long, narrow sepals. The operculum of *P. longipes* is quite unlike that of any near relatives.

This is the type species of Bory's *Anthactinia*, a genus proposed for the granadillas with entire leaves and glandular petioles. No other species were formally transferred by Bory, but Roemer applied the generic name to several Old World species of Passifloraceae.

LOCAL NAME: "Flor del campo."

246. *Passiflora mucronata* Lam. Encycl. 3: 33. 1789.

Passiflora albida Ker, Bot. Reg. 8: pl. 677. 1822.

Passiflora pallida Vell. Fl. Flumin. 9: pl. 70. 1827. Not *P. pallida* L.

Decaloba pallida M. Roemer, Fam. Nat. Syn. 2: 152. 1846.

Passiflora aetheoantha Barb. Rodr. Contr. Jard. Bot. Rio de Janeiro 3: 60. pl. 8. 1902.

Plant glabrous throughout; stem terete, stout, about 2 mm. thick, slightly flexuous; stipules ovate-lanceolate, 1.5 to 2.5 cm. long, 0.5 to 1.5 cm. wide, subacute, mucronate, oblique (midnerve excentric), cordulate at base, strongly reticulate-veined, often glaucous, coriaceous; petioles 1 to 2 cm. long, obscurely 2-4-glandular near middle; leaves ovate-cordate, 4 to 12 cm. long, 2.5 to 6 cm. wide, rounded at apex, subpeltate, 3-5-nerved, conspicuously reticulate-veined, thick-coriaceous; peduncles solitary, up to 8 cm. long, articulate about 1 cm. below apex, terete, often arcuate above, very stout, fully equal to the diameter of the stem; bracts oblong-lanceolate, 2 to 2.5 cm. long, about 1 cm. wide, acute, apiculate, narrowed at base, sessile, reticulate-veined, thin-membranous, usually glaucous, borne at least 1 cm. below base of flower; flowers 8 to 10 cm. wide, white; calyx tube campanulate; sepals linear, up to 8 mm. wide, obtuse, dorsally broadly keeled, the keel terminating in an awn 2 to 3 mm. long; petals linear, about as long as the sepals, obtuse; corona filaments in 2 series, the outer very slender, about 10 mm. long, the

inner filiform-clavate, 2 to 3 mm. long; operculum borne at middle of tube, filamentose, the filaments 2 to 3 mm. long; limen cupuliform; ovary narrowly ovoid; fruit ovoid, 4 to 5 cm. long, about 2.5 cm. in diameter; seeds oblong-obcordate, about 5 mm. long and 4 mm. wide, strongly flattened, reticulate.

TYPE LOCALITY: Rio de Janeiro, Brazil.

ILLUSTRATIONS: Cav. Diss. 10: *pl.* 282; Bot. Reg. 8: *pl.* 677; Vell. Fl. Flumin. 9: *pl.* 70; Contr. Jard. Bot. Rio de Janeiro 3: *pl.* 8.

DISTRIBUTION: Eastern Brazil, from Bahia to Rio de Janeiro.

BRAZIL: *Sello* 214 (B), 2124 (B), 2147 (B); *Peckholt* 354 (Brux); *Blanchet* 1420 (BM, Gen), 1510 (BM, Gen); *Thouin* (Ma); *Pohl* (V). Caraguatatuba, *Edwan* 1750 (Cop).—Bahia: *Blanchet* 303 (BM, Gen), 665 (BM, Gen, Y); *Salzmann* 291 (Gen).—Rio de Janeiro: Rio de Janeiro, *Commerson* (Ma, P, type); *Gaudichaud* 1039 (B, Gen, P), 1635 (Gen, P); *Tweedie* 1371 (K); *Burchell* 1542 (K), 2906 (K); *Miers* (BM); *Wilkes Expedition* (N); *Dusén* in 1904 (S); *Warming* 1170 (Cop), 1182 (P), 1187 (Cop). São Pedro, *Chase* 10147 (N). Copacabana, *Glaziou* 399 (B, Cop, P). Larangeiras, *Glaziou* 3655a (P). Mana, *Ule* 3797 (B); *Dusén* 233 (Gen, N, S). Restinga de Cabo Frio, *Glaziou* 10872 (B, K, P). Recreio de Bandeirantes, *Lutz* 513 (N).

LOCAL NAME: "Sururú."

247. *Passiflora subrotunda* Mast. in Mart. Fl. Bras. 13, pt. 1: 601. 1872.

Passiflora Barbosae Barb. Rodr. Vellozia 1: 27. 1891; 3, pt. 2: 1. *pl.* 13a. 1891.

Plant glabrous throughout; stem slender, up to 1.5 mm. thick; stipules semi-ovate or semi-orbicular, 1 to 3 cm. long, 0.5 to 1.5 cm. wide, acute and aristulate at apex, rounded at base, membranous; petioles about 1 cm. long, minutely biglandular just below apex; leaves suborbicular or cordate, 2.5 to 4 cm. long, 2 to 4 cm. wide, rounded and usually emarginate at apex, membranous; peduncles solitary, up to 2 cm. long, slender; bracts borne about 5 mm. below flower base, ovate-lanceolate, 6 to 8 mm. long, 5 to 6 mm. wide, acute at both ends, thin-membranous; flowers about 2.5 cm. wide; calyx tube campanulate, 5 to 7 mm. wide at throat; sepals linear, 1.5 to 2.5 cm. long, 3 to 4 mm. wide, obtuse, corniculate, deep blue at margin, pale blue at center; petals similar to the sepals, slightly shorter and narrower, deep blue; corona filaments in 2 subequal

series, filiform, 7 to 9 mm. long, reddish purple; operculum membranous, erect, finely crenulate; limen cupuliform, closely surrounding base of gynophore; ovary ovoid, stipitate; fruit ovoid, 1.3 to 2 cm. long, 7 to 11 mm. in diameter; seeds obovate, 3.5 mm. long, 2.5 mm. wide, reticulate.

TYPE LOCALITY: Aracaty, State of Ceará, Brazil.

ILLUSTRATION: *Vellosia* 3, pt. 2: *pl.* 13a.

DISTRIBUTION: Northeastern Brazil.

BRAZIL: Ceará: Aracaty, *Gardner 1632* (BM, K, type). Maranhão, *Gardner 6030* (BM, K); *Jobert 928* (P). Fortaleza, *Drouet 2660* (N).

This plant has the general appearance of *P. mucronata* but is more slender in every way, with all parts smaller. The leaves and stipules are membranous. *Passiflora Barbosae* is clearly the same species; it was based upon material from the State of Parahyba.

LOCAL NAME: "Maracujá de rato."

248. *Passiflora Galbana* Mast. Gard. Chron. III. 20: 555. *f.* 97. 1896.

(?) *Passiflora silvestris* Vell. Fl. Flumin. 9: *pl.* 74. 1827, plate only; ex M. Roemer, Fam. Nat. Syn. 2: 153. 1846.

Plant glabrous throughout; stem terete, slightly flexuous; stipules ovate-lanceolate, 1 to 2 cm. long, 1 cm. wide, acute, mucronulate, oblique and subcordate at base (midnerve excentric), strongly reticulate-veined, coriaceous; petioles 1 to 1.5 cm. long, minutely biglandular toward apex; leaves oblong-lanceolate, 7 to 13 cm. long, 3 to 6.5 cm. wide, obtuse and mucronulate at apex, rounded or cordulate at base, coriaceous; peduncles 5 to 9 cm. long, terete, at length as stout as the stem, articulate near apex; bracts oblong-lanceolate, 1 to 1.5 cm. long, 6 to 8 mm. wide, acute, borne at least 1 cm. below base of flower; flowers white or pale yellow; calyx tube broadly cylindric-campanulate, about 7 mm. long, 1 cm. wide; sepals narrowly oblong, about 4 cm. long and 7 mm. wide, dorsally broadly keeled, the keel terminating in a foliaceous awn 5 to 6 mm. long; petals similar in shape and size to sepals; corona filaments in 2 series, the outer liguliform, 8 to 10 mm. long, the inner filiform, 2 to 3 mm. long; operculum borne at middle of calyx tube, filamentose; limen cupuliform; ovary ellipsoidal, glabrous; fruit narrowly ovoid, 6 to 7 cm. long, about 2 cm. in diameter, narrowed to a blunt point, 5-angled; seeds obovate, 4 to 5 mm. long, 3 to 3.5 mm. wide.

TYPE LOCALITY: Described from plants introduced into England, probably of north Brazilian origin.

ILLUSTRATIONS: Mart. Fl. Bras. 13, pt. 1: *pl.* 119, as *P. mucronata*; Gard. Chron. III. 20: 555. *f.* 97; (?) Vell. Fl. Flumin. 9: *pl.* 74.

DISTRIBUTION: Eastern Brazil, Bahia to Rio de Janeiro.

BRAZIL: Bahia: *Blanchet 1567* (BM, Gen).—Minas Geraes: *St. Hilaire 1689* (P). Lagôa Santa, *Warming 1163* (Cop, N). Carvelho, *Warming 1164* (Cop). Capichava, *Mexia 5026* (Gen, N, P). Bello Horizonte, *Mello Barreto 867* (N), *868* (N), *870* (N).—Rio de Janeiro: Copacabana, *Glaziou 14853* (cited as *P. sylvestris*, Bull. Soc. Bot. France, Mém. 3: 318. 1909; B, Cop, P).

This is perhaps only a form of *P. mucronata*. The leaves are proportionately much longer and are 1-nerved, not 3–5-nerved.

249. *Passiflora amabilis* Lemaire, Fl. des Serres. 3: *pl.* 209. 1847.

Plant glabrous throughout; stem very slender, terete or subterete; stipules ovate-lanceolate, about 1.5 cm. long, 2 to 3 mm. wide, acuminate, subfalcate, soon deciduous; petioles slender, 1.5 to 4 cm. long, bearing 1 or 2 pairs of sessile glands; leaves ovate-oblong or ovate-lanceolate, 7 to 12 cm. long, 4 to 9 cm. wide, acute, entire, subcordate, penninerved or subtrinerved, membranous; peduncles solitary, 3 to 4 cm. long; bracts ovate, about 2 cm. long and 1.5 cm. wide, borne at the base of the flower; flowers 8 to 9 cm. wide (expanded); calyx tube short-tubular, about 1.5 cm. long and 1.5 cm. wide at the throat; sepals linear-oblong or linear-lanceolate, about 3.5 cm. long and 1 cm. wide, dorsally short-awned, green without, bright red within; petals subequal to the sepals, bright red; corona filaments white, in 4 series, the outermost 2 to 2.5 cm. long, radiate, the second series about 1.5 cm. long, radiate, the third about 1.5 mm. long and consisting of only a few erect threads, the innermost about 4 mm. long, erect; operculum erect, about 6 mm. high, obscurely filamentose at the very margin; limen erect, about 4 mm. high, closely surrounding the gynophore, 5-dentate; ovary pruinose.

TYPE LOCALITY: Described from a cultivated specimen.

ILLUSTRATIONS: Fl. des Serres 3: *pl.* 209; Bot. Mag. 74: *pl.* 4406; Garden 55: 272.

DISTRIBUTION: Southern Brazil(?).

In assigning a name to this plant, Lemaire stated definitely that it was a horticultural hybrid between *P. princeps* (*P. racemosa*) and *P. alata*. The following year Hooker described it under the same

name, suggesting that it was a hybrid between *P. alata* and *P. quadrangularis*. I am including it in this account of the American Passifloraceae because Masters cites as *P. amabilis* Sello 599, a collection which I have not seen, and Harms gives southern Brazil as the home of the species. It may be a natural hybrid there.

The detailed description of the flower given above is based mainly upon a beautifully prepared specimen, sent the U. S. National Herbarium by Dr. André Guillemin, from a plant cultivated on the Côte d'Azur, France.

250. *Passiflora mapiriensis* Harms, Notizbl. Bot. Gart. Berlin 10: 810. 1929.

Plant essentially glabrous throughout (except ovary); stem subterete, striate, slender; stipules narrowly semi-lanceolate, 1 to 1.2 cm. long, long-acuminate at apex, semi-cordulate, soon deciduous; petioles 1 to 3 cm. long, very slender, bearing 4 to 6 scattered, sessile or subsessile glands about 0.6 mm. in diameter; leaves ovate to ovate-oblong, 4.5 to 8 cm. long, 3 to 6 cm. wide, abruptly or gradually acuminate at apex, rounded or shallowly cordate at base, entire, septuplinerved, membranous; peduncles solitary, 2 to 3 cm. long; bracts lanceolate, 8 to 10 mm. long, acuminate, membranous, borne about 1 cm. from base of flower; calyx tube campanulate, 5 to 6 mm. long; sepals narrowly oblong, about 3 cm. long, 8 mm. wide, obtuse, slightly cucullate, short-awned dorsally just below apex, white; petals lance-oblong, about 2 cm. long, 1 cm. wide, obtuse, white; corona filaments filiform, in 4 or 5 series, the outermost 2 to 2.5 cm. long, purplish below, the succeeding ones 3 to 4 mm. long; operculum filamentose, the filaments 7 to 8 mm. long, connate at base; limen closely surrounding base of gynophore; ovary puberulent.

TYPE LOCALITY: San Carlos, Mapiri region, Bolivia.

DISTRIBUTION: Known only from type locality in northern Bolivia.

BOLIVIA: La Paz: Mapiri region, San Carlos, 850 meters, *Buchtien* 903 (B, type, N).

251. *Passiflora Jileki* Wawra, Oesterr. Bot. Zeitschr. 1863: 110. 1863; Bot. Ergebn. Reise Maxim. 59. pl. 8. 1866.

(?) *Passiflora mediterranea* Vell. Fl. Flumin. 9: pl. 72. 1827, figure only; M. Roemer, Fam. Nat. Syn. 2: 168. 1846.

Passiflora colorata Mast. in Mart. Fl. Bras. 13, pt. 1: 601. 1872.

Plant glabrous throughout; stem terete, often purplish; stipules semi-ovate (subreniform), 1 to 3 cm. long, 0.5 to 1 cm. wide, conspicuously reticulate-veined, coriaceous; petioles up to 4 cm. long, bearing 2 to 5 short-stipitate glands; leaves lanceolate, ovate-lanceolate, or oblong-lanceolate, up to 15 cm. long, 10 cm. wide, acute, cordate and subpeltate at base, 5-nerved (midnerve prominent), reticulate-veined, entire, usually hyaline-cartilaginous at margin, thick-coriaceous; peduncles solitary, 5 to 6 cm. long, slender; bracts cordate-ovate, about 1 cm. long and wide, rounded and minutely apiculate at apex, subentire, thin-herbaceous, pinkish, densely spotted with red; flowers 3 to 4 cm. wide, white, pink-tinged; sepals oblong, about 1.5 cm. long and 7 mm. wide, obtuse, cucullate, dorsally awned, the awn barely 1 mm. long; petals slightly narrower than the sepals; corona filaments in 3 series, the outermost radiate, as long as the petals, the inner 2 much shorter; operculum membranous, incurved, serrulate; limen cupuliform, closely surrounding base of gynophore; ovary ovoid, stipitate, glabrous; fruit ovoid or subglobose, about 3 cm. in diameter; seeds oblong-cuneate, about 5 mm. long, 3.5 mm. wide, reticulate.

TYPE LOCALITY: Corcovado, Rio de Janeiro, Brazil.

ILLUSTRATIONS: Bot. Ergebn. Reise Maxim. *pl.* 8; (?)Vell. Fl. Flumin. 9: *pl.* 72.

DISTRIBUTION: Southeastern Brazil, Minas Geraes to Santa Catharina.

BRAZIL: *Sello* 5960 (B).—Minas Geraes: Fazenda de Grama, Carangola, *Mexia* 4251 (N).—Rio de Janeiro: Corcovado, *Wawra & Maly* 530 (V, type). Rio de Janeiro, *Ducke* 21312 (K, N); *Kuhlmann* 2265 (Ut); *St. Hilaire* 719 (P); *Miers* (BM, K). Gavea, *Glaziou* 6551 (Cop, Gen, P). Tijuca, *Glaziou* 3020 (Brux, Cop, P). Mt. Itatiaia, *L. B. Smith* 1630 (N).—São Paulo: Santos, *Mosén* 3175 (S).—Paraná: Porto Dom Pedro, *Dusén* 4418 (S). Rio Branco; *Dusén* 13821 (BM, S). Alexandra, *Dusén* 11494 (Gen, N, S).—Santa Catharina: *Beechey* (K, type of *P. colorata*). São Francisco, *Ule* 369 (B).

The bracts, though smaller, resemble those of *P. actinia* in shape and coloring. The outline of the leaves and the structure of the corona of these two species are quite different, however. From *P. mucronata* and *P. Galbana* this species is readily distinguished by its slender peduncles.

252. *Passiflora retipetala* Mast. Kew Bull. Misc. Inf. 1893: 12. 1893.

Plant glabrous throughout; stem terete or subangulate; stipules semi-ovate, 10 to 20 mm. long (including a filiform awn 6 to 7 mm. long), 6 to 10 mm. wide, midnerve excentric; petioles 2 to 5 cm. long, 6-8-glandular, glands sessile, about 0.7 mm. in diameter; leaves subcordate-ovate, 6 to 10 cm. long, 4 to 7 cm. wide, acute or acuminate, subtruncate or cordulate at base, 5-nerved, membranous or subcoriaceous; peduncles 2.5 to 3 cm. long; bracts cordate-ovate, 2 to 2.5 cm. long, 1 to 1.5 cm. wide, acute, mucronate; flowers 5 to 7 cm. wide; sepals oblong or oblong-lanceolate, 2 to 3 cm. long, 1 cm. wide, obtuse, white within; petals narrowly lanceolate or slightly spatulate, 2.5 to 3.2 cm. long, 8 to 10 mm. wide, obtuse, 1-nerved, white, conspicuously reticulate with arcuate veins; corona filaments filiform, in about 5 series, the outermost radiate, 1.5 to 2.5 cm. long, the others erect, 2 to 4 mm. long, slightly thickened toward apex; operculum membranous at base, filamentose above, the filaments about 5 mm. long; limen cupuliform; ovary ovoid or subglobose, glaucous-pruinose.

TYPE LOCALITY: Mazaruni River, British Guiana.

DISTRIBUTION: British Guiana and northern Brazil.

BRITISH GUIANA: *Taylor* in 1916 (Y). Mazaruni River, *Jenman 5791* (K, type). Junction of Mazaruni and Cuyuni rivers, *Graham 126* (CM).

BRAZIL: Amazonas: Manaos, *Ducke 24045* (N).

This is most easily recognized among species of this relationship by the length of the awns of the stipules and the conspicuously veined petals, which are *longer* than the sepals.

253. *Passiflora actinia* Hook. Bot. Mag. 69: pl. 4009. 1843.

Passiflora paulensis Killip, Journ. Wash. Acad. Sci. 17: 428. 1927.

Plant glabrous throughout; stem subterete, slender, wiry; stipules semi-ovate, 1 to 4 cm. long, 0.5 to 2 cm. wide, rounded or acuminate and aristulate at apex, rounded at base, attached laterally (hence subreniform), entire or slightly crenulate, 1-nerved (nerve strongly excentric), reticulate-veined, subcoriaceous; petioles 0.5 to 5 cm. long, slender, 4-glandular, the glands sessile or subsessile, usually one pair near apex and one pair near base of petiole; leaves broadly oval or suborbicular, 3 to 10 cm. long, 2 to 8 cm. wide, entire, subpeltate, rounded or slightly narrowed at base, quintuplinerved or septupli-

nerved, subcoriaceous or membranous, often glaucous beneath; peduncles 1.5 to 3 cm. long, slender; bracts cordate-ovate or cordate-lanceolate, 1.5 to 2.5 cm. long, 1 to 1.5 cm. wide, acute at apex, mucronulate, sessile, verticillate, thin-membranous, glaucous; flowers up to 9 cm. wide (expanded); calyx tube campanulate; sepals oblong-lanceolate, up to 1.5 cm. wide, obtuse, ecorniculate, green without, white within; petals about a fourth longer than the sepals, about 1 cm. wide, white; corona filaments in 4 or 5 series, those of the 2 outer series terete, equaling or slightly longer than the petals, white at tips, followed by a wide band of blue, the lower three-quarters alternately banded with red and white, the 2 or 3 inner series consisting of minute tuberculiform filaments barely 1 mm. long; operculum membranous, about 2 mm. high, with numerous dentiform processes at margin; nectar ring a low ridge; limen tubular, about 6 mm. high, closely surrounding base of gynophore, flaring at margin; ovary ovoid, glabrous.

TYPE LOCALITY: Organ Mountains, in southeastern Brazil (type collected by Lobb).

ILLUSTRATIONS: Bot. Mag. 69: *pl.* 4009; Fl. des Serres 2: *pl.* 10. April, 1846; Gard. Chron. III. 32: 15. *f.* 8. 1902.

DISTRIBUTION: Southeastern Brazil.

BRAZIL: *Martius* (Brux). Villa Thuret, collector uncertain, in 1889 (A).—Rio de Janeiro: Theresopolis, *Brade* 9493 (B).—São Paulo: Apiahy, *Puiggari* in 1883 (P, type of *P. paulensis*).—Paraná: Curityba, cultivated, *Dusén* 8809 (B, BM, Gen, N, S). Ponta Grossa, *Dusén* 10928 (S). Ypiranga, *Dusén* 6672 (S), 12128 (S); Jönsson 834a (S). Jaguariahyba, *Dusén* 17463 (B, S).

From *P. Jileki*, the only Brazilian species of this immediate relationship, *P. actinia* is readily distinguished by the shorter, oval, obtuse leaves. It is sometimes confused with *P. sidaefolia* (*P. tetraden* Vell.), but the leaves of that species are 3-lobed, though sometimes obscurely so, and the bracts are different.

Passiflora paulensis appears to be a form of this with smaller, thinner leaves and smaller flowers.

254. *Passiflora canescens* Killip, sp. nov.

Herba scandens; caulis glaber; stipulae semi-oblongae vel subreniformes; petioli 6-glandulosi, glandulis filiformibus, subcurvatis; folia cordato-ovata vel ovato-lanceolata, subcoriacea, supra glabra, subtus dense et minute cinereo-puberula; bractae cordato-ovatae; sepala petalaeque oblonga, subaequalia, sepalis extus dense et minute

puberulis, late carinatis; coronae filamenta 3-4-seriata, extima quam altera longiora; operculum erectum, minute fimbriatum; ovarium ovoideum, cano-tomentosum.

Herbaceous vine; stem subterete, glabrous, dark brown; stipules semi-oblong or subreniform, 2 to 2.5 cm. long, 8 to 10 mm. wide, entire, subcoriaceous, persistent; petioles 2.5 to 3.5 cm. long, stout, bearing 3 pairs of filiform, slightly curved glands 1.5 to 2 mm. long; leaves cordate-ovate or ovate-lanceolate, 9 to 11 cm. long, 5 to 6.5 cm. wide, obtuse, subpeltate, cordulate, entire, 3-5-nerved, subcoriaceous, bright green, glabrous, and conspicuously reticulate above, densely puberulent beneath with a minute, soft, grayish white indument, which likewise clothes the base of the tendrils and the peduncles, the under side of the stipules, the inside of the bracts, and the outside of the sepals and calyx tube; peduncles in pairs, slenderer than the petioles, 3.5 to 4 cm. long; bracts cordate-ovate, about 1.5 cm. long and 1 cm. wide, obtuse, mucronulate, membranous, borne at the apex of the peduncle; calyx tube patelliform, about 5 mm. long, 1 cm. wide at the throat; sepals oblong, 1.5 to 2 cm. long, 7 to 9 mm. wide, obtuse, dorsally broad-keeled, the keel up to 4 mm. wide, terminating in a short horn; petals oblong, subequaling the sepals, obtuse, white, minutely spotted with red; corona in 3 or 4 series, filiform, outermost filaments about 1.5 cm. long, radiate, purplish(?), the succeeding ones subulate, 1 to 2 mm. long, erect; operculum about 1.5 mm. high, erect, minutely fimbriate; limen membranous, about 2 mm. high, closely surrounding the gynophore; ovary ovoid, white-tomentose.

Type in the U. S. National Herbarium, No. 1,593,569, collected at Serra do Caraca, Municipio Santa Barbara, State of Minas Geraes, Brazil, April 13, 1933, by Mello Barreto (No. 874; *Herb. Jard. Bot. Bello Horizonte* No. 5465).

This plant is remarkable for its dense, fine indument, which gives a decided ashy color to the under side of the leaves and to the outside of the flowers. The sepals are broadly keeled, almost as broadly as in *P. Parritae*, a species of the wholly unrelated subgenus *Tacsonia*.

255. *Passiflora praeacuta* Mast. Bot. Jahrb. 8: 220. 1887.

Stem terete or subquadrangulate, glabrous below, pilose above; stipules foliaceous, obliquely ovate, 1.5 to 2.5 cm. long, 0.7 to 1 cm. wide, acuminate, aristate, glandular-serrulate; petioles 2 to 3 cm. long, pilose, bearing 4 to 6 curved, filiform glands 2.5 to 4 mm. long; leaves ovate-lanceolate, 10 to 16 cm. long, 6 to 8 cm. wide,

acuminate, subcordate at base, coriaceous or subcoriaceous, glabrous above, pilose with long, appressed hairs and glaucous beneath; peduncles 2 to 4 cm. long; bracts ovate, about 1 cm. long, acute, borne at base of flower; calyx tube 6 mm. long, 9 mm. wide at throat; sepals lanceolate, 2 cm. long, 8 mm. wide, 1-nerved (nerve keeled dorsally, terminating in an awn 1.3 cm. long), reflexed, green without, white within; petals linear-lanceolate, 2 cm. long, 5 mm. wide, obtuse, white; corona filaments in 2 main groups, the outer in a single series, filiform, 2 cm. long, reflexed at tips, white, banded or densely mottled at base with red-violet, banded at middle with dark purple, dark purple in upper third, the second group consisting of a dense mass (i. e., not in definite series) of erect, capillary filaments, 6 mm. long, red-violet, white at apex; operculum membranous, 3 mm. long, erect, filamentose at margin with hyaline hairs; nectar ring annular, horizontally spreading inward; limen cupuliform, 5 mm. high, closely adherent to gynophore, minutely denticulate at margin, light yellow-green; gynophore and styles white, spotted with red-violet; stigmas green, orbicular; ovary ellipsoidal, glaucous.

TYPE LOCALITY: Near Frontino, Department of Antioquia, Colombia.

DISTRIBUTION: Western Cordillera of Colombia and central Ecuador, 1,500 to 2,000 meters altitude.

COLOMBIA: Antioquia: Frontino, *Lehmann XI* (Bo, type).—El Valle: La Cumbre, *Pennell & Killip 5877* (G, N, Ph, Y); *Killip & Hazen 11120* (G, N, Ph, Y).

ECUADOR: León: Naranjal, *Lehmann 5663* (K).

Closely related to *P. Oerstedii*, this species differs in its longer, curved petiolar glands, thicker leaves, and larger flowers, and in the arrangement of the corona filaments. Dimensions and color notes of floral parts are based on field notes of *Killip & Hazen 11120*.

256. *Passiflora Oerstedii* Mast. in Mart. Fl. Bras. 13, pt. 1: 562. 1872.

Passiflora populifolia Triana & Planch. Ann. Sci. Nat. V. Bot. 17: 150. 1873.

Passiflora Purpusii Killip, Journ. Wash. Acad. Sci. 12: 261. 1922.

Passiflora dispar Killip, Journ. Wash. Acad. Sci. 12: 330. 1922.

Stem slender, glabrous, terete or the younger parts subangular; stipules semi-ovate, 1 to 4 cm. long, 0.5 to 1.5 cm. wide, acuminate

and usually long-cuspidate, rounded at base, dark green and glabrous above, green or usually glaucescent, often pilosulous, beneath; petioles 1 to 4 cm. long, bearing 4 to 6 (rarely 2) scattered or paired, stipitate glands up to 1.3 mm. long; leaves ovate-lanceolate to narrowly oblong-lanceolate, 6 to 13 cm. long, 3 to 9 cm. wide, acute or obtuse, rarely asymmetrically bilobed, or 3-lobed to below the middle (lobes lanceolate or oblong-lanceolate, 1.5 to 3 cm. wide, acute or subobtusate), rounded or usually cordulate at base, subpeltate, 5-7-nerved, entire or remotely serrulate toward base, membranous or subcoriaceous, light or dark green, dull or lustrous, glabrous above, dull, glaucous, glabrous to densely matted-hirtellous beneath; peduncles 2 to 4 cm. long, glabrous; bracts ovate-lanceolate, 1 to 1.5 cm. long, 5 to 8 mm. wide, acute at apex, rounded or cordate at base, closely callous-serrulate, reticulate-veined, borne 5 to 10 mm. below the base of the flower, deciduous; flowers 4 to 6 cm. wide; calyx tube campanulate, 7 to 8 mm. long; sepals ovate-lanceolate, 2 to 3 cm. long, 5 to 12 mm. wide, cucullate at apex, carinate (keel terminating in a short incurved awn), white within; petals linear, 1 to 1.5 cm. long, 3 to 5 mm. wide, obtuse, white or pinkish; corona filaments purple, in several series, those of the 2 outer filiform, 1.5 to 2 cm. long, those of the succeeding 2 or 3 series ligulate, 1.5 to 2 mm. long, erect, the innermost linear-clavate, 3 mm. long; operculum 6 to 8 mm. high, filamentose nearly to base; nectar ring a low ridge halfway between operculum and gynophore; limen cupuliform, closely surrounding base of gynophore, crenulate; ovary ovoid, glabrous, glaucous; fruit ovoid, 4 to 6 cm. long, 2 to 3 cm. in diameter; seeds narrowly obovate, 4 to 5 mm. long, 2 to 3 mm. wide, shallowly tridentate, coarsely reticulate.

TYPE LOCALITY: Mt. Aguacate, Costa Rica.

ILLUSTRATION: Mutis, Icon. Pl. Ined. 26: *pl. 37bis*.

DISTRIBUTION: Southern Mexico to central Venezuela and south in the Western and Central Cordilleras of Colombia; up to 1,800 meters altitude.

MEXICO: *Sartorius* (B).—Veracruz: Zacuapan, *Purpus* 3689 (Cal), 7664 (N, type of *P. Purpusii*). Misantla, *Galeotti* 3674 (Brux, P).

COSTA RICA: *Pittier* 4416 (Brux). Mt. Aguacate, *Oersted* 4114 (Cop, type). Guanacaste, *Standley & Valerio* 44942 (N). Garita, *Hoffmann* 663 (B). Arenal, *J. Valerio* 22 (N). El Muñeco, Cartago, *Standley* 33632 (N). La Estrella, Cartago, *Standley* 39463 (N).

VENEZUELA: Carabobo: Guaremales, *Pittier* 8854 (B, N, type of *P. dispar*).—Aragua: El Portachuelo, *Pittier* 11813 (N).

COLOMBIA: Tolima: Near Ibagué, *Goudot* (P, type of *P. populifolia*).—Caldas: Salento, *Pennell* 9064 (N, Ph).—El Valle: La Cumbre, *Killip* 5555 (G, N, Y), 5682 (G, Ma, N, Ph, Y); *Cuatrecasas* 2006 (Ma). Pavas, *Killip* 11662 (N). Between Potrerillo and Miraflores, *Pennell & Killip* 6115 (G, N, Ph, Y).

This species, evidently of wide geographic distribution, was known to Masters from only a single Costa Rican specimen, collected by Oersted. This type specimen is glabrous throughout, and the leaves are rather narrowly oblong-lanceolate.

In view of recent collections it is evident that four species should be merged in *P. Oerstedii*. This multiplicity of names is due to a lack of appreciation of the variability of the foliage and the indument, and to the fact that type material of *P. Oerstedii* is limited.

Passiflora populifolia, described from Colombia, has leaves of a more ovate type; *P. Purpusii*, from the northern limit of the range of distribution, has the under surface of the leaves pubescent and has relatively small flowers. The material upon which both of these were based had strictly unlobed leaves.

In *P. dispar* the leaves of the type specimen, from Venezuela, are asymmetrically bilobed, but a type collection at Berlin has both entire and symmetrically 3-lobed leaves. The plant common in Guatemala and Honduras, which has been known as *P. choconiana*, has the leaves nearly always 3-lobed, and is perhaps best treated as a variety.

LOCAL NAME: "Granadilla" (Costa Rica).

256a. *Passiflora Oerstedii* var. *choconiana* (Wats.) Killip, Carnegie Inst. Wash. Publ. 461: 321. 1936.

Passiflora choconiana Wats. Proc. Amer. Acad. 22: 474. 1887.

Leaves prevailingly 3-lobed.

TYPE LOCALITY: Chocón River, Guatemala.

DISTRIBUTION: Southern Mexico to Costa Rica.

MEXICO: Tabasco: Between Atasta and Tamulté, *Rovirosa* 781 (Ph).

GUATEMALA: Río Chocón, *Watson* 212 (G, type).—Alta Verapaz: Chamiquín, *Türckheim* 545 (B). Semacoch, *Goll* 270 (N). Pansamalá, *Türckheim* 986 (B, BM, G, N). Cubiliquitz, *Türckheim* II. 188 (N), 7745 (N), 8213 (N). Cobán, *Türckheim* 2480 (N). Finca

Mocca, *H. Johnson* 93 (N). Chamá, *H. Johnson* 471 (N), 511 (N).—Baja Verapaz: Panzal, *Türkheim II*.1725 (N).

HONDURAS: Lancetilla Valley, *Standley* 52914 (N). Río Esperanza, *Wilson* 445 (Y). Cuyamel, *Carleton* 436 (N).

BRITISH HONDURAS: Toledo, *Peck* 663 (G, Y). Machaca, *Schipp* 1215 (Gen, Mich).

COSTA RICA: Villa Colón, *M. Valerio* 1318 (F). Cairo, Limón, *Standley & Valerio* 48672 (N).

257. *Passiflora loretensis* Killip, Journ. Wash. Acad. Sci. 21: 349. 1931.

Plant essentially glabrous throughout; stem terete, striate; stipules semi-oblong, 13 to 18 mm. long, 6 to 7 mm. wide, oblique, obtuse and mucronulate at apex, the midnerve slightly excentric; petioles 1.5 to 2 cm. long, bearing 2 pairs of subulate glands, one pair near apex, the other near middle, the glands 1.5 mm. long; leaves lanceolate, 10 to 12 cm. long, 5.5 to 6 cm. wide, acuminate at apex, cordulate and subpeltate at base, entire, 7-nerved, reticulate-veined (nerves and veins strongly elevated beneath), coriaceous, sparsely pilosulous on nerves beneath, concolorous; peduncles 1.5 to 3.5 cm. long, articulate about 5 mm. from apex; bracts cordate-ovate, 2 to 2.5 cm. long, 1 to 1.5 cm. wide, acuminate or abruptly acute, mucronulate, membranous, light green, persistent; flowers about 5 cm. wide, pink(?); calyx tube broadly campanulate, about 6 mm. long, 10 to 15 mm. wide at throat; sepals oblong, 1.8 to 2 cm. long, 6 to 8 mm. wide, obtuse, cucullate toward apex, carinate, the keel terminating in an awn 4 to 5 mm. long; petals slightly shorter than sepals; corona filaments in 5 series, filiform, those of the 2 outer series radiate, about 1.5 cm. long, pale pink, the inner ones compact, 4 mm. long, deep pink; operculum membranous, 5 mm. long, fimbriate to middle, deep pink; nectar ring a low ridge; limen tubular, 4 mm. long, closely surrounding base of gynophore, crenulate; ovary broadly ovoid; fruit globose, about 5 cm. in diameter, the exocarp coriaceous; seeds narrowly cuneate, 7 to 8 mm. long, 2 to 3 mm. wide, coarsely reticulate.

TYPE LOCALITY: La Victoria, on Amazon River, Department of Loreto, Peru.

DISTRIBUTION: Known only from the type locality, in northeastern Peru.

PERU: Loreto: La Victoria, Amazon River, *L. Williams 3086* (F, N, type).

This is most closely related to *P. Oerstedii*, and though the differences seem slight when stated in a key, this single specimen of *P. lorentensis* appears much unlike any of the specimens of *P. Oerstedii* at hand. The leaves are much thicker and are green on both surfaces. The bracts are larger.

258. *Passiflora Rojasii* Hassl. ex Harms, Notizbl. Bot. Gart. Berlin 10: 812. 1929.

Stem slender, sparsely pilosulous or puberulous; stipules semi-ovate-lanceolate, 1 to 2 cm. long, 0.3 to 0.4 cm. wide, cuspidate-acuminate; petioles 1.5 to 3.5 cm. long, bearing 4 to 8 filiform glands about 1 mm. long; leaves oblong-lanceolate or ovate-lanceolate, 7 to 10 cm. long, 3.5 to 5 cm. wide, acute at apex, cordulate or subtruncate at base, 5-nerved, glabrous above, puberulous or pilosulous and glaucescent beneath; peduncles solitary, about 3.5 cm. long; bracts deltoid-ovate, 1 to 1.2 cm. long, 7 to 8 mm. wide, cordate at base, sessile, borne about 6 mm. below base of flower; flowers 7 to 8 cm. wide (expanded); calyx tube campanulate, 7 to 8 mm. long, about 12 mm. wide; sepals oblong-lanceolate, 3.5 to 4 cm. long, 7 to 8 mm. wide, dorsally awned just below apex, the awn 5 to 6 mm. long; petals linear, slightly shorter than sepals; corona filaments in 5 series, those of the 2 outer series filiform, 2.5 to 3 cm. long, those of the 3 inner ones about 5 mm. long, minutely capitate; operculum 6 to 7 mm. high, filamentose in upper third; nectar ring annular; ovary ovoid, glabrous, pruinose.

TYPE LOCALITY: Sierra de Amambay, Paraguay.

DISTRIBUTION: Bolivia, central Brazil, and Paraguay.

BOLIVIA: Antahuacana, Espíritu Santo, 750 meters, *Buchtien 4652* (N).

BRAZIL: Matto Grosso: Santa Anna, *Malme* in 1902 (S).

PARAGUAY: Sierra de Amambay, *Rojas (Hassler 10305; B, type, BM)*.

The differences between this species and *P. Oerstedii* are perhaps too slight, but it is improbable that the species of northwestern South America extends into Paraguay. The Bolivian specimen seems intermediate between typical *P. Rojasii* and *P. praeacuta*, having an indument somewhat similar to that of the latter.

Series 14. Lobatae

259. *Passiflora Gardneri* Mast. in Mart. Fl. Bras. 13, pt. 1: 614. 1872.

Stem subterete, villous; stipules semi-ovate, 4 to 6 mm. long, 4 to 5 mm. wide, aristate, rounded at base, subfalcate; petioles up to 2.5 cm. long, villous, biglandular at apex and at middle, the glands orbicular, sessile; leaves 5 to 8 cm. long, 6 to 9.5 cm. wide, 3-lobed to middle (lobes ovate-lanceolate, 1.5 to 2.5 cm. wide, obtuse, eglandular in sinuses), cordate, entire, 5-nerved, membranous, villous above, tomentose beneath; peduncles up to 4 cm. long, slender; bracts lanceolate, about 2 cm. long, 5 to 7 mm. wide, borne at base of flower; flowers 5 to 6 cm. wide, light blue; calyx tube campanulate; corona filaments in 4 or 5 series, the outermost filiform, 7 to 9 mm. long, those of the succeeding series 1 to 2 mm. long; operculum erect, filamentose nearly to base; ovary subglobose, glabrous, glaucous-pruinose.

TYPE LOCALITY: Almas, State of Piauhý, Brazil.

DISTRIBUTION: East-central Brazil.

BRAZIL: Vilha Boa, *Pohl 2484* (V).—Piauhý: Almas, *Gardner 3193* (Kew, type).

This species is at once distinguished from its near relatives of this group by the character of its indument. The leaves are strikingly similar in outline and pubescence to those of *P. setacea*, but the foliaceous stipules and much shorter peduncles, as well as a wholly dissimilar coronal structure, clearly differentiate it.

260. *Passiflora caerulea* L. Sp. Pl. 959. 1753.

Granadilla caerulea Medic. Malvenfam. 96. 1787.

(?) *Passiflora Selloi* Dehnhardt, Riv. Napolitan. I, 3: 180; Walp. Repert. 2: 220. 1843.

Passiflora caerulea var. *angustifolia* G. Don, Hist. Pl. Dichl. 3: 53. 1834.

Passiflora caerulea var. *glaucophylla* G. Don, Hist. Pl. Dichl. 3: 53. 1834.

Passiflora caerulea var. *Regnellii* Mast. in Mart. Fl. Bras. 13, pt. 1: 617. 1872.

Passiflora caerulea var. *glauca* Mast. in Mart. Fl. Bras. 13, pt. 1: 617. 1872.

Passiflora caerulea var. *imbricata* Mast. in Mart. Fl. Bras. 13, pt. 1: 617. 1872.

Plant glabrous and often glaucous throughout; stem subangular, striate, grooved; stipules semi-ovate, attached near middle of side (hence, subreniform), 1 to 2 cm. long, 0.5 to 1 cm. wide, aristate or mucronulate, remotely dentate or denticulate or subentire; petioles 1.5 to 4 cm. long, bearing 2 to 4 (rarely up to 6) stipitate glands; leaves palmately 5 (occasionally 3, 7, or 9)-lobed two-thirds their length or usually nearly to base (lobes linear-oblong to broadly ovate-oblong, up to 10 cm. long, 0.5 to 2.5 cm. wide, obtuse or emarginate, occasionally acutish, mucronulate, entire, 2-4-glandular in the sinuses, sometimes overlapping), cordate, membranous; peduncles 3 to 7 cm. long, slender or more usually stout; bracts broadly ovate to ovate-oblong, 1.5 to 2.5 cm. long, 1 to 1.5 cm. wide, rounded at apex, borne close to flower base, thin-membranous, pale green; flowers up to 10 cm. wide; calyx tube cup-shaped; sepals lance-oblong or oblong, 1.5 to 2 cm. long, 1 to 1.5 cm. wide, obtuse, subcoriaceous, green without, white or pinkish within, faintly keeled dorsally, the keel terminating in a slender awn up to 5 mm. long; petals oblong, 1.5 to 2.5 cm. long, 1 to 1.5 cm. wide, obtuse, membranous, white or pinkish; corona filaments in 4 series, those of the outer 2 varying from scarcely half as long (about 6 mm. and very slender) to fully as long as the petals, filiform (those of second series slightly the coarser), radiate, blue at apex, white at middle, purple at base, those of the inner 2 series 1 to 2 mm. long, capitellate, erect, white, purplish at apex; operculum membranous up to one-third its length, white, filamentose above, the filaments 3 to 4 mm. long, erect, dark purple; nectar ring a fleshy, dark purple ridge; limen cup-shaped, white, closely surrounding base of gynophore, crenulate; ovary ovoid or subglobose, pruinose; fruit ovoid or subglobose, about 6 cm. long, 4 cm. in diameter, orange-color or yellow; seeds obcordate or cuneate, about 5 mm. long, 3.5 to 4 mm. wide, coarsely reticulate.

TYPE LOCALITY: Brazil, the type seen in the Linnean Herbarium.

ILLUSTRATIONS: Amoen. Acad. 1: *pl. 10, f. 20*; Bot. Mag. 1: *pl. 28*; Cav. Diss. 10: *pl. 295*; Lam. Tab. Encycl. *pl. 732*; Bot. Reg. 6: *pl. 488*; Gard. Chron. n. ser. 21: 701. *f. 133*. 1884; III. 43: 186. *f. 77*; Bailey, Cycl. Amer. Hort. 1223. *f. 1653*; Stand. Cycl. Hort. 2484. *f. 2772*; L'Hort. Franç. II. 6: *pl. 1*.

DISTRIBUTION: Brazil south to Argentina; also cultivated in Mexico, British Guiana, western South America, and other parts of the world.

CALIFORNIA: Pacific Beach, cultivated, *Kumm* in 1928 (N).

MEXICO: *Schnée* in 1894 (P).—Puebla: Puebla, cultivated, *Arsène* 2329 (G, N).—Mexico: Valley of Mexico, *Schaffner* 136 (P).

BERMUDA: St. Georges, cultivated, *Brown, Britton & Worthley* 1783 (Y); *Brown, Britton & Bisset* 2153 (Y).

BRITISH GUIANA: Cultivated, *Jenman* 7266 (BG).

PERU: *Dombey* 740 (Gen, P).—Lima: Lima Botanical Garden, *Killip & Smith* 21530 (N, Y).—Tacna: Tacna, cultivated, *Rusby* 489 (F, G, N, Y).

CHILE: *Née* 382 (Ma).—Concepción: Talcahuana, cultivated, *Poeppig* 34 (P), 71 (Gen), *D.* 443 (V).

BRAZIL: *Hoffmannsegg* (V).—Ceará: Sertão de Caridade, *Ducke* 2137 (Go).—Minas Geraes: Caldas, *Regnell III*. 636 (K, type of *P. caerulea* var. *Regnellii*, N, S); *Mosén* 4492 (S).—Paraná: Marechal Mallet, *Dusén* 3037 (N, S). Calmon, *Dusén* 9371 (S). Guarapuava, *Dusén* 11066 (S).—Rio Grande do Sul: *Gaudichaud* in 1833 (P). Neu Württemberg, *Bornmüller* 600 (Gen, Ut, V). Porto Alegre, *Lindman* 245 (N, S); *Reineck* in 1899 (V).

PARAGUAY: *Kuntze* in 1892 (Y); *Jørgensen* 2841 (Mo). Ypacaray, *Hassler* 12319 (Cop, G). Caaguazú, *Hassler* 9424 (Gen, P, V). Cordillera de Altos, *Hassler* 12309 (G, Gen, N). San Estanislao, *Hassler* 4268 (Bo, Gen, P). Paraguari, *Balansa* 2203 (Gen); *Lindman* A3581 (S); *Ostén* 8924 (S). Río Pilcomayo, *Lindman* in 1893 (S). Villa Rica, *Jørgensen* 3787 (N). Río La Plata, *Palmer* (N). Asunción, *Morong* 141 (Y). La Trinidad, *Balansa* 2204, in part (Bo, Gen). Tacural, *Hassler* 1240 (Bo, P). Campo Grande, *Archer* 4942 (N).

URUGUAY: *Sello* in 1823 (N). Banda Oriental, *St. Hilaire* 2291 (P). Cerro Melona, *Fruchard* in 1875 (P). San José, *Herter* 718b (Gen, Ut). Montevideo, *Fruchard* (P); *Courbon* in 1850 (P). Ribera, *Archer* 4455 (N).

ARGENTINA: Las Palmas, *Jørgensen* 2615 (G, N).—Salta: Campo Grande, Orán, *Venturi* 7630 (N). Cerro de San Lorenzo, *Venturi* 5092 (N).—Chaco: Fontana, *Meyer* 159 (N).—Córdoba: Córdoba, *Stuckert* 151 (Gen), 4791 (Gen), 4965 (Gen), 9122 (Gen), 9754 (Gen), 14003 (Gen), 14689 (Gen); *Lorentz* 174 (B, Bo, Brux, Gen, V); *Hieronymus* 90 (Gen), 222 (P).—Santa Fé: Reconquista, *Job* 855 (N).—Corrientes: Mercedes, *Lorentz* in 1881 (Gen).—Misiones: Posadas, *Archer* 4614 (N).—Buenos Aires: Buenos Aires, *Bacle* 30 (Gen); *Parodi* (*Archer* 4592; N).

Passiflora caerulea is one of the hardiest and most commonly cultivated of the passion-flowers. Doubtless hybrids of this and other close relatives are developed naturally. In *Jørgensen 3787* and *Hassler 9424* many of the leaves are 3-lobed, with relatively broad lobes, but the flowers are typical of the short-corona forms of *P. caerulea*, suggesting that it is a hybrid of *P. caerulea* and perhaps *P. tucumanensis*. As in the case of *P. edulis*, *P. quadrangularis*, and other extensively cultivated species, herbarium specimens show considerable variation. In the present paper, which deals primarily with native species, I am making no attempt to segregate the forms which doubtless represent horticultural hybrids or chance reversion to earlier forms. Horticultural hybrids of this with *P. alata*, *P. kermesina*, *P. racemosa*, and other species have been developed. The plant is probably indigenous to Brazil, Uruguay, and Paraguay.

In typical *P. caerulea* the leaves are 5-lobed, the lobes narrowly oblong. The lower pair of lobes are occasionally once or twice lobed, the lobes over-lapping. The same difference in the relative length of the outer corona filaments to the petals, noted in the case of *P. edulis*, is seen here, but this difference seems in no way correlated with other characters. The type specimen in the Linnean Herbarium has relatively short corona filaments, a condition represented by *Regnell III.636*, the type of *P. caerulea* var. *Regnellii*, and *Lindman 3581*. In *Lindman 245* the filaments are fully 2 cm. long, nearly as long as the petals.

LOCAL NAMES: "Passion-flower" (English-speaking countries); "pasionaria" (Spanish America); "burucuyá," "viricujá" (Uruguay, Paraguay); "murucúa guaraní" (Paraguay); "murucuyá" (Argentina).

261. *Passiflora Mooreana* Hook. f. Bot. Mag. 66: pl. 3773. 1840.

(?) *Passiflora Neillii* Regel, Fl. Allg. Bot. Zeit. 32: 184. 1849.

(?) *Passiflora Tweediana* Speg. Anal. Mus. Nac. Buenos Aires 6: 350. 1899, name only.

Plant glabrous throughout; stem subangular, stout, slightly scabrous, glaucescent; stipules ovate-lanceolate, 2 to 4 cm. long, 0.6 to 1 cm. wide, acuminate, cuspidate, rounded at base, oblique, entire, often undulate at base, or serrate, 1-nerved, conspicuously reticulate-veined, coriaceous; petioles 7 mm. long or less, biglandular above middle, the glands about 2 mm. wide, sessile; leaves 7 to 12 cm. long, 8 to 10 cm. wide, 3-lobed two-thirds to four-fifths their length

(lobes narrowly oblong-lanceolate, 1 to 1.5 cm., rarely up to 2 cm., wide, acute or obtuse, mucronulate, 2-5-glandular in the sinuses, the glands auricular, up to 2 mm. long), cuneate at base, 5-nerved (nerves elevated beneath), conspicuously reticulate-veined, coriaceous; peduncles 1 to 1.5 cm. long; bracts ovate-lanceolate, 2 to 3 cm. long, 1 to 2 cm. wide, acuminate, cordate, serrate, 1-nerved, reticulate-veined, coriaceous; flowers about 6 cm. wide; calyx tube campanulate; sepals oblong, 6 to 8 mm. wide, obtuse, green without, white within, concave, slightly carinate, the keel terminating in a short mucro; petals oblong, as long as the sepals, about 1 cm. wide, obtuse, white; corona filaments in 2 series, the outer subequal to petals, blue, banded with deep purple near middle, white at base, the inner very short, deep blue; operculum membranous, erect, filamentose nearly to base; limen tubular, erect, crenulate at margin; ovary globose; fruit ovoid, yellow; seeds ovate, about 4 mm. long, 3 mm. wide, reticulate.

TYPE LOCALITY: Argentina, "remote parts of the interior."

ILLUSTRATION: Bot. Mag. 66: *pl.* 3773.

DISTRIBUTION: Southern Bolivia, Paraguay, and northern Argentina, at low elevations.

BOLIVIA: El Chaco: Río Pilcomayo, *Fries 1666* (S). Ibibobo, *Troll 465* (B).

PARAGUAY: Chaco Grande, *Pride* (K).

ARGENTINA: Río Plata, *Palmer* in 1853-1856 (N). Santa Fé, *Harman* in 1884 (K).—Salta: Tartagal, *Venturi 7628* (N).—Tucumán: Santiago del Estero, *Tweedie 2524* (BM, K, type).—Formosa: Las Lomitas, *Parodi 8403* (G).—Chaco: Las Brenas, *Venturi 9752* (BM, G, K, Mo, N). Río Sáenz Peña, *Meyer 2047* (N).—Córdoba: Córdoba, *Stübel 4* (B); *Kuntze* in 1891 (F, N, Y); *Lorentz 75* (B), 175 (V); *Hieronymus 109* (B), 223 (B, Gen, P), 224 (B, P); *Stuckert 5060* (Gen), 7959 (Gen), 15194 (Gen). Paraíso, *Stuckert 2302* (Gen); *Lossen 199* (G, Ph).—Buenos Aires: *Stuckert 11195* (Gen).

Though keying out to this complex group, *P. Mooreana* is readily distinguished from its relatives by coriaceous, nearly sessile leaves, cuneate at the base, and large, acuminate, coriaceous bracts. A much simpler coronal structure is represented here than in near allies.

262. *Passiflora dalechampioides* Killip, Journ. Wash. Acad. Sci. 17: 429. 1927.

Plant glabrous throughout, stipules semi-oblong, 1.5 to 3.5 cm. long, 7 to 15 mm. wide, acute, mucronulate, rounded at base, oblique,

attached laterally near base; petioles 2 to 3.5 cm. long, bearing 6 to 9 short-stipitate glands on dorsal side; leaves trisect to within 2 mm. of base (segments lanceolate or elliptic-lanceolate, 3.5 to 10 cm. long, 1 to 3.5 cm. wide, acuminate, mucronulate, glandular-serrulate in sinuses, often overlapping), cordate at base, 3-5-nerved, reticulate-veined, subcoriaceous, sublustrous; peduncles 3.5 to 10 cm. long, articulate just below apex; bracts oblong or oblong-lanceolate, 1 to 1.2 cm. long, 5 to 6 mm. wide, acute, mucronulate, thin-membranous, glaucous, borne at point of articulation; flowers about 4.5 cm. wide, "greenish blue"; calyx tube short-campanulate; sepals linear-oblong, about 2 cm. long, 6 to 8 mm. wide, cucullate and short-awned at apex; petals linear, about 1 cm. long and 3 mm. wide; corona filaments in 3 series, the outermost filiform, about 7 mm. long, those of the 2 inner series capillary, 2 to 3 mm. long; operculum membranous, 2 mm. high, denticulate; nectar ring a short membrane; limen tubular, adnate to base of gynophore; ovary ovoid; fruit ovoid, 4 cm. long, 2 cm. wide (probably larger), the pericarp coriaceous; seeds obovate-oblong, about 5 mm. long, 3 mm. wide, reticulate.

TYPE LOCALITY: Coroico, Yungas, Bolivia.

DISTRIBUTION: Known only from the type locality, in north-central Bolivia.

BOLIVIA: La Paz: Coroico, *Bang 2441* (G, K, N, type, Y).

This collection was identified by Masters as *P. trisulca*. The leaves bear a general resemblance to that species, though they are much more deeply lobed, and the petiolar glands are more numerous. The flowers are smaller, the outer corona filaments filiform, not liguliform, and the operculum merely denticulate. The shape of the leaves suggests rather *P. Weberbaueri*, a wholly different species of the subgenus *Granadillastrum*.

263. *Passiflora cornuta* Mast. in Mart. Fl. Bras. 13, pt. 1: 612. 1872.

Plant essentially glabrous throughout; stem terete; stipules semi-oblong-lanceolate, 1.5 to 2.5 cm. long, 0.5 to 1 cm. wide, oblique, cuspidate-acuminate, rounded at base; petioles 3 to 5 cm. long, slender, 2-4-glandular near middle, the glands short-stipitate; leaves 5 to 7 cm. long, 6 to 10 cm. wide, 3-lobed to or slightly beyond middle (lobes oblong-lanceolate, 1.5 to 3 cm. wide, obtusish, minutely mucronulate, biglandular at sinuses), cordate and subpeltate at base, 5-nerved, thin-membranous, green above, glaucescent beneath, glabrous or very sparingly pilosulous above and on nerves beneath;

peduncles 4 to 8 cm. long, stout; bracts oblong, 1.5 to 2.5 cm. long, 1 to 1.3 cm. wide, acutish and mucronulate at apex, cordate, conspicuously 1-nerved, thin-chartaceous, glaucous, persistent; flowers about 5 cm. wide; calyx tube broadly campanulate; sepals oblong, obtuse, cucullate, dorsally foliaceous-awned; petals oblong, subequal to sepals, purplish; corona 4-ranked, the outer 2 rows of filaments narrowly ligulate, slightly shorter than the petals, the inner filaments capillary, 2.5-3 mm. long, minutely capitate, erect; operculum tubular, membranous at base, filamentose above, bearing minute, dentiform processes within; nectar rings 2, rather remote from each other; limen tubular, laxly surrounding base of gynophore, crenulate at margin; ovary ovoid, tomentose.

TYPE LOCALITY: Porto Imperial, Goyaz, Brazil.

DISTRIBUTION: Known only from the type locality, in central Brazil.

BRAZIL: Goyaz: Porto Imperial, *Burchell 8537* (K, type, N, P, Y).

This and the following species of the series *Lobatae* constitute one of the most complex groups in the entire genus. In the general outline of the leaves, stipules, and bracts the species bear a close resemblance to one another. The leaves are 3-lobed nearly to or to slightly beyond the middle, the lobes being subequal and usually glandular-serrulate in the sinuses; petiolar glands are usually present, varying in number from two to nine; the stipules are semi-ovate, semi-oblong, or semi-lanceolate, attached laterally at a point from near their base to near their middle (in the latter case, the stipules appear nearly reniform); the bracts are large, usually thin-membranous and glaucous, and all three are borne at the point of articulation of the peduncle; the flowers are showy, and have a complex coronal structure.

Masters keyed out these species into certain main groups, but the characters which he used, i.e., the relative length of the peduncles to the petioles, and of the outer corona filaments to the petals, are unsatisfactory; indeed, these proportions vary even within a single species. Better distinguishing characters for the grouping of the species appear to be (1) whether the sepals terminate in a broad, leaflike awn or in a minute mucro; (2) whether the bracts are borne close to or remote from the base of the flower; (3) whether the operculum is filamentose or merely fimbriate or denticulate; (4) whether the petiolar glands are stipitate or sessile.

Many of the species were described originally from living plants introduced into British conservatories, and the points of difference

between the species were thus far more evident than in the case of dried herbarium material. In treating the Brazilian species of this group I have fortunately had the opportunity of examining the large collections in European herbaria, material from southeastern South America in American herbaria being scant. However, as it was not possible always to make the necessary floral dissections in Europe, further study of this group, with all available material at hand at one time, is essential.

264. *Passiflora violacea* Vell. Fl. Flumin. 9: *pl.* 84. 1827, figure only; M. Roemer, Fam. Nat. Syn. 2: 177. 1846.

Passiflora Bangii Mast. Bull. N. Y. Bot. Gard. 4: 363. 1907.

Passiflora laminensis Barb. Rodr. Contr. Jard. Bot. Rio de Janeiro 4: 95. *pl.* 18. 1907.

Plant essentially glabrous throughout, except ovary; stem terete or subangular; stipules ovate-oblong, 1.5 to 3.5 cm. long, 0.8 to 1.5 cm. wide, oblique, cuspidate, subcrenulate; petioles up to 5 cm. long, 3-8-glandular, the glands short-stipitate; leaves up to 12 cm. along midnerve and 15 cm. between apices of lateral lobes, 3-lobed two-thirds to four-fifths their length (lobes variable, ovate-oblong or oblong-lanceolate, 1.5 to 4 cm. wide, acutish or obtusish, the lateral horizontally divaricate or ascending), cordulate and subpeltate at base, 5-7-nerved, entire or slightly glandular-serrulate in sinuses between lobes and at base, membranous or subcoriaceous, often lustrous above and usually turning black on drying, usually glaucescent beneath; peduncles 5 to 15 cm. long, rather stout; bracts elliptic-oblong, 1 to 1.2 cm. long, 6 to 8 mm. wide, 1-nerved, narrowed at base, dark purplish when dry, borne within 5 mm. of flower base; flowers up to 10 cm. wide; calyx tube short-campanulate; sepals oblong or oblong-lanceolate, 7 to 10 mm. wide, obtuse, dorsally long-awned (awn foliaceous, 8 to 13 mm. long), glaucous-pruinose without, purple within; petals oblong-lanceolate, as wide as and somewhat shorter than the sepals, obtuse, purplish blue; corona filaments in 6 or 7 series, those of the 2 outer radiate, as long as the petals, ligulate at base, attenuate-subulate at apex, white below, violet above, the succeeding 4 or 5 rows of filaments capillary, 3 to 6 mm. long, dark purple; operculum 8 to 10 mm. long, erect, filamentose about two-thirds its length, bearing within near base several minute, dentiform processes; nectar ring a low ridge; limen cupuliform, closely surrounding the base of the gynophore; ovary ovoid, ferruginous-villous-tomentose, the hairs hyaline.

TYPE LOCALITY: Brazil (Rio de Janeiro?).

ILLUSTRATIONS: Vell. Fl. Flumin. 9: *pl.* 84; Mart. Fl. Bras. 13, pt. 1: *pl.* 123; Bot. Mag. 114: *pl.* 6997; Contr. Jard. Bot. Rio de Janeiro 4: *pl.* 18; Rev. Hort. 57: opp. p. 468.

DISTRIBUTION: Bolivia; eastern Brazil, from Minas Geraes south to Santa Catharina, and Paraguay.

BOLIVIA: *Bang* 2224 (B, BM, type of *P. Bangii*, Bo, CM, G, Gen, Minn, N, Ph, V, Y).—La Paz: Nequejahuira, 2,600 meters, *G. H. H. Tate* 655 (Y). Sirupaya, 2,100 meters, *Buchtien* 229 (N).—Cochabamba: Incacorral, 2,400 meters, *Steinbach* 9823 (G, K, S).

BRAZIL: *Sello* 1149 (B), 2130 (B); *Mendonça* 1043 (B); *Pohl* 922 (K). Serra de Chrystaes, *Pohl* 1018 (V).—Minas Geraes: *Widgren* 574 (N, S). Lagôa Santa, *Claussen* 378 (P); *St. Hilaire* 988 (P), 1623 (P); *Warming* 1152 (Cop). Caldas, *Regnell* I.164 (B, Brux, Cop, K, N, P, S); *Mosén* 1856 (S). Viçosa, 650 meters, *Chase* 9460 (B, N); *Mexia* 4183 (N), 5454a (N). Serra de Itatiaia, *Dusén* 97 (N, S). Barroso, *Mexia* 4448 (Gen, N). Bello Horizonte, *Barreto* 863 (N).—Rio de Janeiro: Corcovado, *Guillemin* 834 (P). Petropolis, *Glaziou* 8721 (B, Cop, K, P). Nova Friburgo, *Glaziou* 18256 (B, K, P). Rio de Janeiro, *De Moura* 504 (B), 505 (B).—São Paulo: *Puiggari* (P); *Brade* 8336 (B).—Santa Catharina: Itajahy, *Müller* 430 (K).

PARAGUAY: Igitimí, *Hassler* 4739 (BM, Bo, Gen, K, V).

Possibly more than one species is represented by the material here listed, wide differences being noted in the shape of the leaves and length of the peduncles. Velloso's figure shows rather narrow, acutish leaf lobes, very stout peduncles 15 to 20 cm. long, and a pubescent ovary; the petiolar glands are not well drawn. *Chase* 9460, *Glaziou* 8721, and *Puiggari* (without number) appear to be the typical *P. violacea* of Velloso. The petiolar glands number from four to eight, and are stipitate. In *Warming* 1152 and *Müller* 430 the leaves are thinner and the lobes proportionately broader. In *Widgren* 574 and *Regnell* I.164 the peduncles are shorter, 4 to 6 cm. long, and more slender, and these plants approach *P. amethystina*. The Bolivian material, described as *P. Bangii*, differs from the *Warming* specimen only in somewhat shorter peduncles. In the Paraguay specimen the peduncles are rather slender and the awns of the sepals shorter.

The three species, *P. violacea*, *P. cornuta*, and *P. amethystina*, are very closely related, the differences noted in the key apparently being the only distinguishing marks.

Lehmann 4834, from Loja, Ecuador, cited (Bot. Jahrb. 18: Beibl. 46: 10. 1894) as *P. violacea*, is *P. Sprucei*.

265. *Passiflora amethystina* Mikan, Delect. Fl. & Faun. Bras. Fasc. 4: second unnumbered plate. 1825.

Passiflora onychina Lindl. Bot. Reg. 24: pl. 21. 1838.

Decaloba onychina M. Roemer, Fam. Nat. Syn. 2: 162. 1846.

Passiflora lilacina M. Roemer, Fam. Nat. Syn. 2: 177. 1846, as synonym.

Stem slender, wiry, terete, sparingly and finely pilosulous, or glabrous; stipules semi-ovate-lanceolate, 0.5 to 1 cm. long, 2 to 4 mm. wide, aristate, rounded at base; petioles 2 to 4.5 cm. long, 5-8-glandular, the glands short-stipitate, barely 0.5 mm. long, scattered; leaves up to 6 cm. along midnerve and 10 cm. between apices of lateral lobes, 3-lobed to slightly below middle (lobes oblong, up to 3 cm. wide, obtuse, minutely biglandular in sinuses), shallowly cordate and often subpeltate at base, 5-nerved, membranous, glabrous, glaucescent beneath, the upper surface often turning very dark in drying; peduncles 2.5 to 5 cm. long; bracts narrowly lanceolate, remotely glandular-serrulate, borne close to base of flower; flowers 6 to 8 cm. wide; calyx tube short-campanulate, green; sepals oblong, 5 to 6 mm. wide, carinate (keel terminating in an awn 4 to 5 mm. long), bright blue within, green without; petals oblong, slightly longer than the sepals, 6 to 8 mm. wide, obtuse, bright blue; corona 4-5-ranked, the 2 outer rows of filaments narrowly liguliform, about two-thirds as long as the sepals, 1 mm. wide or more, strongly compressed, 1-nerved, deep reddish purple in lower third, white, blue-maculate in middle third, pale reddish purple in upper third, the succeeding filaments filiform, about 3 mm. long, capitate, erect, dark purple; operculum membranous at base, filamentose at least four-fifths its length, the filaments 6 to 7 mm. long, purple; nectar ring annular; limen cupuliform, laxly surrounding base of gynophore; ovary ovoid, ferruginous-villous-tomentose; fruit ellipsoidal, 5 to 6 cm. long, 2 to 2.5 cm. in diameter, glabrescent.

TYPE LOCALITY: Tocaja, Brazil (type collected by Mikan).

ILLUSTRATIONS: Mikan, Delect. Fl. & Faun. Bras. Fasc. 4: second unnumbered plate; Bot. Reg. 24: pl. 21; Bot. Mag. 67: pl. 3820.

DISTRIBUTION: Eastern Brazil, from Minas Geraes to São Paulo.

BRAZIL(?): Plant cultivated in England, *Traill* (K, type of *P. onychina*).

BRAZIL: *Sello* 709 (B), 920 (BM), 2131 (B). Barranca de Tucú, *Martius* (Brux).—Minas Geraes: *Widgren* 713 (Brux).—Rio de Janeiro: *Warming* 1184 (Cop); *Widgren* 712 (Brux), 910 (S). Corcovado, *Miers* (K). Nova Friburgo, *Claussen* 33 (P). Tijuca, *Glaziou* 7649 (Cop, K, N, P); *Chase* 12163 (N). Gavea, *Glaziou* 6550 (Cop, P).—São Paulo: Serra de Caracol, *Mosén* 1327 (S). Campinas, *Heiner* 116 (S). São Paulo, *Löfgren* 628 (Cop).—Paraná: *Dusén* 15487 (N). Roca Nova, *Dusén* 8252 (S). Itaperussú, *Dusén* in 1912 (S). Ypiranga, *Dusén* 8301 (S).—Santa Catharina: Rio Uruguay, *Dusén* 11860 (BM, Gen, S).

ARGENTINA: Buenos Aires, cultivated(?), *Andersson* in 1852 (S).

In herbaria *P. amethystina* is distinguished from *P. violacea* only with difficulty, though perhaps in a living state the two are readily separable. Certainly, from the illustrations in the *Botanical Register* and the *Botanical Magazine* the two would never be confused. *Passiflora amethystina* has shorter and slenderer peduncles, and smaller stipules and sepal awns, and the corona is in fewer ranks, the filaments of the two outer ones being coarser.

266. *Passiflora picturata* Ker, Bot. Reg. 8: pl. 673. 1822.

Passiflora guianensis Mey. ex Miq. Linnaea 18: 751. 1844.

Plant glabrous throughout; stem terete; stipules semi-ovate, 1.5 to 2.5 cm. long, 0.6 to 1 cm. wide, aristate; petioles slender, up to 3 cm. long, 2-6-glandular, the glands filiform, 1 to 1.5 mm. long; leaves 3-lobed to or slightly below middle (or a few sometimes unlobed; lobes ovate, rounded or subacute, mucronulate, often glandular in the sinuses), 2 to 6 cm. long, 3 to 7 cm. wide, subpeltate, subcordate or usually rounded at base, thin-membranous, bright green above, purplish beneath; peduncles stout, 5 to 12 cm. long, about twice as long as the adjacent leaves; bracts borne 3 mm. below base of flower, elliptic, 1.5 to 2.5 cm. long, 8 to 12 mm. wide, obtuse, aristulate, tapering at base to a stalk about 2 mm. long; flowers up to 10 cm. wide; calyx tube broadly campanulate, about 5 mm. long, 15 mm. wide; sepals linear-oblong, about 2.5 cm. long and 1 cm. wide, slightly concave, green without, white, blue, or violet within, fleshy, keeled, the keel terminating in a foliaceous awn 5 to 8 mm. long; petals oblong, 1.5 to 2.5 cm. long, 1 to 1.2 cm. wide, obtuse, pinkish or violet; corona filaments in 2 series, the outer subtrigonous, 0.5 to 1.5 cm. long, transversely banded with violet and white, the inner 3 to 5 mm. long; operculum filamentose nearly to base, the filaments erect, 5 to 10 mm. long, reddish; nectar

ring annular, fleshy; limen about 5 mm. high, adnate to the gynophore; ovary ovoid, pruinose; fruit globose, 3 to 3.5 cm. in diameter; seeds obovate, 4 to 5 mm. long and 2 to 3 mm. wide, coarsely reticulate.

TYPE LOCALITY: Brazil, the type from a plant cultivated in England.

ILLUSTRATIONS: Bot. Reg. 8: *pl.* 673; Bot. Cab. 11: *pl.* 1050.

DISTRIBUTION: Surinam to Pará, Brazil.

SURINAM: *Hering* (Leid, N, Ph); *Berthoud-Coulon* 512 (BM). Paramaribo, *Kappler* 1595 (BM, P, S, Ut, type of *P. guianensis*); *Wulfschlägel* 212 (Brux, V).

BRAZIL: Pará: Belem, *Jobert* 69 (P). Aramanahy, *Monteiro da Costa* (F, N).

Distinctly stalked bracts separate this species from its near relatives. There appears to be much variation in the length of the outer corona filaments. *Passiflora guianensis* was doubtfully referred to *P. quadriglandulosa* by Masters.

267. *Passiflora rubrotincta* Killip, Journ. Wash. Acad. Sci. 17: 429. 1927.

Plant glabrous throughout; stem terete, wiry, drying yellowish; stipules subreniform, 1.5 to 2 cm. long, 0.5 to 0.8 cm. wide, minutely mucronulate at one end, rounded at the other, remotely crenulate or subentire, coriaceous; petioles about 2 cm. long, glandless; leaves 4.5 to 8 cm. long and wide, angulately 3-lobed (middle lobe ovate-deltoid, 3 to 4 cm. long, 4 to 5 cm. wide at base, obtusish, the lateral lobes less than half as long), distinctly peltate, truncate at lower margin, 5-nerved, coriaceous, dark green and lustrous above, dull and reddish beneath; peduncles 4 to 7 cm. long, slender, articulate about 2 mm. from apex; bracts cordate-ovate, about 1 cm. long and 7 mm. wide, acute, mucronulate, reddish; flowers 4 to 5 cm. wide; calyx tube campanulate; sepals oblong-lanceolate, about 5 mm. wide at base, coriaceous, dorsally awned just below apex, the awn foliaceous, about 1 cm. long; petals linear-spatulate, slightly shorter and narrower than the sepals; corona filaments filiform, in 3 (or 4?) series, the inner barely 2.5 mm. long; operculum membranous and nonplicate below, filamentose above, the filaments about 3 mm. long; limen tubular, closely surrounding base of gynophore; ovary ovoid.

TYPE LOCALITY: Bolivia.

DISTRIBUTION: Known positively only from Cochabamba, Bolivia.

BOLIVIA: *Bang* (Y, type).—Cochabamba: Socotal, *Steinbach* 9069 (B).

This and the following species are at once distinguished from others of this group by the conspicuously peltate leaves.

268. *Passiflora spectabilis* Killip, Journ. Wash. Acad. Sci. 20: 379. 1930.

Plant glabrous throughout; stem terete, the younger portions subangular; stipules semi-ovate or semi-oblong, 2 to 6 cm. long, 0.8 to 4 cm. wide, obtuse and mucronulate at apex (mucro up to 1.5 mm. long), rounded at base, entire or undulate, the midnerve excentric; petioles 3 to 8 cm. long, bearing 2 subopposite (or 3 scattered), sessile, ovate glands about 1.5 mm. long; leaves 3-lobed not more than to middle, 6 to 12 cm. along midnerve, 5 to 10 cm. along lateral nerves, 10 to 20 cm. wide (lobes broadly triangular, obtuse or subacute), peltate 5 mm. from lower margin (at least the older leaves), 5-nerved, subcoriaceous, glaucescent beneath; at length green; peduncles solitary, 3 to 6 cm. long; bracts ovate, 6 to 7 mm. long, 2 to 3 mm. wide, acute at apex, narrowed at the sessile base, borne 6 to 12 mm. from base of flower, green; flowers 5 to 7 cm. wide; sepals oblong, about 4 cm. long, 1 cm. wide, obtuse, slightly carinate, short-awned (awn 0.5 to 1 mm. long), fleshy, green without, light pink or white within; petals linear, about 2.5 cm. long and 4 mm. wide, obtuse, light pink or white; corona filaments filiform, very slender, in 4 series, those of the 2 outer about 2.5 cm. long, blue, white at tips, those of the inner 2 to 2.5 mm. long, bifid at apex, white; operculum about 7 mm. high, filamentose nearly to base, the filaments white, blue in upper third; limen tubular, about 5 mm. high, closely surrounding base of gynophore; ovary subglobose; fruit globose, 5 cm. in diameter, purplish when ripe, edible; seeds obovate, about 8 mm. long, 5 mm. wide, coarsely reticulate.

TYPE LOCALITY: Iquitos, Department of Loreto, Peru.

DISTRIBUTION: Amazon basin of northeastern Peru.

PERU: Loreto: Mishuyacu, 100 meters, *Killip & Smith* 29884 (F, N, type, Y); *Klug* 242 (F, N, Y). Iquitos, *Killip & Smith* 27165 (F, N, Y), 29846 (N, Y).—Junín: Eneñas, 1,600 meters, *Killip & Smith* 25764 (N, Y).

This is related to the Bolivian plant *P. rubrotincta*, in both species the leaves being peltate much farther from the margin than in the case of other representatives of the subgenus *Granadilla*. *Passiflora spectabilis* has proportionately broader leaves than *P. rubrotincta*, smaller bracts, which are borne fully 6 mm. below the flower, and very short sepal awns. It is perhaps even more closely related to *P. Garckeii*, a native of the Guianas. That species has longer awns to the sepals and larger petiolar glands, and the leaves are at the most only slightly peltate.

The position of the bracts is not constant in *P. spectabilis*, sometimes they are borne well below the base of the flower.

269. ***Passiflora subpeltata*** Ortega, Nov. Rar. Pl. Hort. Matrit. 6: 78. 1798.

Passiflora alba Link & Otto, Icon. Pl. Rar. 65. pl. 33. 1828.

Passiflora stipulata Aubl. sensu Griseb. Bonplandia 6: 7. 1858, not Aubl.

Passiflora adenophylla Mast. in Mart. Fl. Bras. 13, pt. 1: 568. 1872.

Passiflora atomaria Planch. in Mart. Fl. Bras. 13, pt. 1: 570. 1872.

Passiflora stipulata var. *atomaria* Planch. in Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 153. 1873.

Passiflora lutea L. sensu Sessé & Moc. Fl. Mex. 228. 1887. Not *P. lutea* L.

Plant essentially glabrous throughout; stem terete, striate; stipules semi-oblong, 1 to 4 cm. long, 0.5 to 2 cm. wide, mucronulate, entire, glandular-crenulate at base; petioles 4 to 6 cm. long, slender, bearing 2 to 4 minute, ligulate glands 0.5 to 1 mm. long; leaves 4 to 9 cm. long, 5 to 12 cm. wide, 3-lobed to or to below middle (lobes oblong, up to 4 cm. wide, rounded or obtuse, minutely mucronulate, glandular-serrulate in sinuses, the glands frequently obsolescent), subcordate and often subpeltate at base, glabrous or slightly pulverulent above, glabrous beneath; peduncles 4 to 6 cm. long; bracts ovate-oblong, 1 to 1.5 cm. long, about 1 cm. wide, acute or obtuse, cordate and slightly serrulate at base, borne just below base of flowers; flowers 4 to 5 cm. wide; sepals oblong, 0.5 to 1 cm. wide, obtuse, green without, white within, carinate, the keel terminating in a green, foliaceous horn about 1 cm. long, 1 to 2 mm. thick; petals linear-oblong, subequal to sepals; corona filaments white, in 5 series, those of the 2 outer up to 2 cm. long, subequaling the

petals or rarely half as long, filiform, spreading, the succeeding 2 series erect, about 2 mm. long, capitellate, the innermost series capillary, erect, 4 mm. long; operculum membranous, erect or somewhat incurved, about 2.5 mm. high, denticulate or fimbriate; nectar ring narrow; limen tubular, closely surrounding gynophore, the margin reflexed, crenulate; ovary ovoid, glaucous; fruit ovoid or subglobose, 2.5 to 4 cm. in diameter; seeds obovate, flattened, about 5 mm. long, 3 mm. wide, the beak slightly curved, finely reticulate with 25 to 30 meshes.

TYPE LOCALITY: Mexico (probably Cuernavaca), the type seen at Madrid.

ILLUSTRATIONS: Link & Otto, Icon. Pl. Rar. *pl.* 33; Gard. Chron. n. ser. 19: 693. *f.* 15. 1883; Rev. Hort. 56: *pl.* opp. p. 36. 1884; Mutis, Icon. Pl. Ined. 26: *pl.* 9, (?)*pl.* 27.

DISTRIBUTION: Central Mexico, through Central America to Colombia and Venezuela, between sea level and 2,800 meters altitude; also in Cuba and Haiti, where probably introduced. Cultivated in Hawaii.

MEXICO: Sessé & Mociño 4464 (Bo, Ma, type of *P. lutea* sensu Sessé & Moc.); Schiede 53 (B, P); Ocampo in 1841 (P); Liebmann 4073 (Cop), 4074 (Cop); Haenke 851 (Pr), 869 (Pr). Between Ciudad Real and Cacaté, Linden 857 (Bo, Gen, K, type of *P. adenophylla*, P). San Angel, Rutten & Rutten 344 (Ut).—Veracruz: Orizaba, Bourgeau 2437 (Bo, Brux, G, P, S); Hahn 138 (P). Mirador, Sartorius (N). Río de Puerto Moneda, Purpus 10362 (N).—Puebla: Puente de México, Arsène 5563 (F, N). San Luis Tultitlanapa, Purpus 3542 (Cal); Nicolás 957 (Gen, K, P). Puebla, Nicolás in 1910 (Gen).—Morelos: Cuernavaca, Pringle 6181 (B, BM, Bo, Brux, Cal, CM, F, G, Gen, K, Minn, N, P, Ph, Po, S, V, Y).—Mexico: Ypericones, Hinton 4160 (K). La Cumbre, Hinton 655 (K). Cajones, Hinton 3863 (K).—Michoacán: Loma Santa María, Arsène 5926 (Brux, N).—Oaxaca: Reko 17 (N). Nacaltepec, L. C. Smith 466 (G). Oaxaca, Conzatti 2184 (F, G); Galeotti 3664 (Brux, Gen, P). Cerro de San Felipe, Morton & Makrinius 226 (N).

GUATEMALA: Huehuetenango: Lehmann 1566 (BM, Bo, N).—Amatitlán: J. D. Smith 1919 (K, N).

PANAMA: Duchassaing in 1851 (P).—Panama: Red Tank, Maxon 6574 (N), 6597 (N). Juan Díaz, Standley 32051 (N). Taboga Island, Standley 27971 (N). Panama, Paul 445 (N).

CUBA: Cultivated, *M. T. Cook* in 1906 (Y).—Habana: Santiago de Las Vegas, cultivated, *Baker 7282* (B).

HAITI: Port au Prince, *Christ 2226* (B).

VENEZUELA: San Sebastián, *Ernst* in 1887 (S). Lomas de Turi-amo, *Pittier 13859* (N).—Federal District: La Guayra, *Otto 410* (B).—Aragua: Colonia Tovar, *Fendler 2327* (B). Ocumare del Tuy, *Pittier 7808* (N).—Zulia: Maracaibo, *Moritz 1319* (BM).—Mérida: Mérida, *Moritz 1317* (BM).

COLOMBIA: Magdalena: Bonda, *H. H. Smith 1528* (A, B, BM, Brux, CM, F, G, Gen, Ma, N, Ph, S, Ut, Y).—Bolívar: Turbaco, *Killip & Smith 14398* (A, G, N, Y).—Cundinamarca: Triana 2946 (BM, K, type of *P. atomaria*, P), 2947, in part (Gen, HNC). La Esperanza, *Cuatrecasas 3244* (Ma).—Tolima: Ibagué, *Goudot 6* (P).—El Valle: Cali, *Lehmann 3409* (Bo, N).

Passiflora subpeltata apparently occurs naturally only from Mexico to Venezuela and Colombia. Masters cites *Gardner 4690* from Brazil, and a Peruvian plant of Poeppig's as this. The first of these is *P. Eichleriana* and the second is *P. aristulata*. Many of the specimens from Brazil and Argentina are labeled *P. alba* in European herbaria, but in every case in which I was able to dissect flowers they proved to be *P. naviculata*, *P. Eichleriana*, or closely related species other than *P. subpeltata*. The illustrations of *Passiflora alba* in Lemaire, Jard. Fleuriste (3: Misc. 86. 1853) and Paxton's Flower Garden (3: 71. 1852–1853) appear to represent *P. Eichleriana*, *P. tucumanensis*, or *P. naviculata*, though they are not sufficiently detailed to indicate which one; certainly they do not represent *P. subpeltata*.

There can be little doubt that the description of *P. subpeltata* applies to the Mexican plant long passing as *P. alba*. Ortega's description is in great detail except in regard to the coronal structure, and agrees excellently with the material here listed. It was based upon a plant grown from seeds sent from Mexico by Sessé, and very likely *Sessé & Mocino 4464* represents the actual plant from which the seeds were obtained.

In Triana 2946, the type of *P. atomaria*, the sepals and petals are purple-dotted within. Apparently it does not differ otherwise from typical *P. subpeltata*, and probably is merely a color form of this species.

LOCAL NAMES: "Granadina," "granada de zorra" (Mexico).

270. *Passiflora pallens* Poepp. ex Mast. in Mart. Fl. Bras. 13, pt. 1: 567. pl. 128, f. 4. 1872.

Passiflora stipulata Benth. ex Griseb. Cat. Pl. Cub. 113. 1866.
Not *P. stipulata* Aubl.

Plant glabrous throughout; stem terete or subangular, glaucescent; stipules semi-oblong or subreniform, 1 to 3 cm. long, 0.5 to 1.2 cm. wide, obtuse and minutely mucronulate at apex, rounded at base, obscurely crenulate, glaucous; petioles up to 6 cm. long, very slender, 2-4-glandular above middle, the glands short-stipitate, up to 1 mm. long; leaves 4 to 6 cm. long, 6 to 9 cm. wide, 3-lobed about two-fifths their length (lobes broadly ovate or suborbicular, 2 to 4 cm. wide, widest at base, rounded at apex, eglandular in sinuses), shallowly cordate at base, not peltate, membranous, strongly glaucous beneath; peduncles about 2 cm. long; bracts ovate-oblong, 1 to 2 cm. long, 0.8 to 1.5 cm. wide, rounded and mucronulate at apex, cordulate at base, crenulate, glaucous, borne at base of flower; flowers up to 6 cm. wide, white; calyx tube campanulate; sepals oblong-lanceolate, about 3 cm. long and 7 mm. wide, obtuse, dorsally awned, the awn foliaceous, about 1 cm. long, green; petals slightly shorter and narrower than the sepals; corona filaments in 4 series, those of the outer 2 narrowly liguliform, 1 to 1.5 cm. long, white, banded with purple, those of the inner 2 narrowly linear, about 1.5 mm. long, capitellate, shallowly bifid; operculum membranous, about 2 mm. high, minutely erose at margin; nectar ring a fleshy ridge; limen tubular, 3 mm. high, closely surrounding gynophore, denticulate; ovary subglobose, glaucous-pruinose; fruit globose, about 5 cm. in diameter, the pericarp coriaceous, orange-yellow; seeds cuneate-oblong, about 4 mm. long, 2 mm. wide, reticulate.

TYPE LOCALITY: Cuba.

ILLUSTRATION: Mart. Fl. Bras. 13, pt. 1: pl. 128, f. 4.

DISTRIBUTION: Southern Florida, Cuba, and Haiti.

FLORIDA: Madeira Bay, Dade County, *Small* 7799 (S, Y). Cutler, *Small*, *De Winkeler* & *Mosier* in 1924 (Y). Cape Sable, *Small* & *De Winkeler* in 1920 (Y).

CUBA: Pinar del Río: San Gabriel, *Shafer* 11829 (F, N, Y). San Miguel, *León* & *Ekman* 9091 (HS, Y); *Ekman* 10911 (B, S); *Roig* 8 (Y), 7550 (HV).—Habana: Batabanó, *León* 14150 (HS).—Santa Clara: Habanilla, *Cuesta* 218 (Y).—Oriente: *Wright* 2599 (B, Bo, type, G, Gen, HA, P). Manzanillo, *Ekman* 5636 (S).

HAITI: Massif de la Hotte, *Ekman* H10768 (N).

This species is very close to *P. subpeltata*. The principal difference lies in the much coarser outer corona filaments. The leaves are less deeply lobed and the lobes are proportionately broader than in typical *P. subpeltata*. Forms of the latter, however, very closely approximate *P. pallens* in leaf shape.

Wright 2599 is listed in Grisebach's catalog of the Wright collection as *Passiflora (Granadilla) stipulata* Benth., and in Sauvalle's *Flora Cubana* as *Passiflora stipulata* Aubl.?. The attributing of this species to Bentham was clearly an inadvertent error on Grisebach's part, as there is no record of Bentham's having used this name. In proposing *P. pallens*, Masters says, "*P. pallens* Poepp. MSS. (= *P. stipulata* Benth. ex Griseb. Pl. Wright Cub. 2599, nec Aublet). Habitat in Cuba et in Venezuela: Burchell!, Fendler 2327!." No Poeppig specimen is listed, and I have seen none of his Cuban collections which can possibly be *P. pallens*. There are at the Boissier Herbarium specimens of *Wright 2599* and of a Peruvian collection of Poeppig's, both of which had evidently been examined by Masters. The Peruvian specimen, annotated by Poeppig "*P. pallens* Poepp. diar.," belongs to a different species. The two Venezuelan specimens cited by Masters as *P. pallens* represent *P. cyanea*.

271. *Passiflora elegans* Mast. in Mart. Fl. Bras. 13, pt. 1: 621. 1872.

Plant glabrous throughout; stem terete (younger portions angulate), very slender; stipules semi-ovate-lanceolate, 1 to 1.5 cm. long, 0.4 to 0.6 cm. wide, aristate, rounded at base, oblique; petioles up to 3.5 cm. long, very slender, minutely biglandular near middle, the glands short-stipitate; leaves 2.5 to 5 cm. long, 3.5 to 6 cm. wide, 3-lobed in upper third (lobes suborbicular, subequal, 1.5 to 2 cm. wide, rounded and emarginate at apex, biglandular in sinuses), truncate at base, 3-5-nerved, membranous, glaucous beneath; peduncles 2.5 to 4 cm. long, slender; bracts ovate-lanceolate, 10 to 13 mm. long, 6 mm. wide, acute, narrowed at base, sessile, thin-membranous, glaucous, borne 6 to 10 mm. below base of flower; flowers 3.5 to 4 cm. wide; calyx tube short-campanulate; sepals oblong-lanceolate, about 2 cm. long, 1 cm. wide, obtuse, ecoriunculate, white(?); petals subequal to the sepals, about 6 mm. wide, obtuse, white(?); corona filaments in 4 series, those of the outer 2 subulate, about 1.5 cm. long, apparently white, banded with blue, those of the third series about 1 mm. long, those of the inner series reduced to

mere tubercles; operculum membranous, erect, about 1.5 mm. high, denticulate; ovary globose, glaucous.

TYPE LOCALITY: Rio Grande do Sul, Brazil.

ILLUSTRATION: Engl. & Prantl, *Pflanzenfam.* ed. 2. 21: 495. f. 229B.

DISTRIBUTION: Southern Brazil to northeastern Argentina.

BRAZIL: Rio Grande do Sul, *Fox* (K, type). Porto Alegre, *Malme* 152 (N, S).

URUGUAY: Isla Gaspar, Río Uruguay, *Stuckert* 15474 (Gen).

ARGENTINA: Corrientes: *Bonpland* in 1821 (P). Santa María, *Bonpland* 758 (P).

Malme's beautifully prepared material permits a more complete diagnosis of the flowers of this rare species, definitely known hitherto only from the type specimen. Masters placed the species in a section (No. 3) of *Granadilla*, characterized by a plicate operculum and foliaceous bracts, though his brief description does not suggest that the operculum is plicate. Actually it is nonplicate, and the species is most closely related to the West Indian *P. pallens*.

It may be well to call attention to the fact that the Argentine specimens previously cited were part of a small collection made by Bonpland during the later years of his life, and are not to be confused with the well known Humboldt and Bonpland collection from northwestern South America and Mexico. The specimens of this collection bear a printed label "Herbier de la province de Corrientes, donné par M(onsieur) A. Bonpland;" this has led to a confusion with Cape Corriente, Colombia, a place not visited by Humboldt and Bonpland.

272. *Passiflora naviculata* Griseb. Abh. Ges. Wiss. Göttingen 19: 149. 1874.

Passiflora tucumanensis var. *naviculata* Hicken, *Darwinia* 1: 129. 1924.

Plant glabrous throughout; stem terete or subangular; stipules semi-ovate, attached near middle of side (hence, subreniform), 1.5 to 2.5 cm. long, 0.5 to 0.8 cm. wide, mucronate, glandular-serrulate; petioles up to 3 cm. long, slender, glandless; leaves 2.5 to 6 cm. long, 4 to 7 cm. wide, 3 (rarely 5)-lobed about two-thirds their length (lobes ovate-oblong or ovate-lanceolate, 1 to 2 cm. wide, obtuse, mucronulate or retuse, 2-4-glandular in the sinuses, the glands sometimes filiform), cordulate or rounded at base, not peltate,

5-7-nerved, membranous, slightly glaucous beneath; peduncles 2 to 3 cm. long, slender; bracts cordate-deltoid or cordate-lanceolate, about 1 cm. long, 0.8 cm. wide, subacute or obtuse, mucronulate, glandular-serrate at base (serrations becoming shallower toward apex), glaucous, borne within 5 mm. of base of flower; flowers 4 to 5 cm. wide; calyx tube patelliform; sepals linear-oblong, 4 to 5 mm. wide, green without, white within, carinate, the keel terminating in a green, foliaceous awn about 5 mm. long; petals linear, shorter than sepals, barely 3 mm. wide, white; corona filaments in 5 series, the outermost subulate, about half as long as sepals, fleshy, white, violet-banded, those of the second series similar but barely 3 mm. long, those of the succeeding series capillary, about 1 mm. long, white; operculum membranous, 1.5 to 2 mm. high, minutely fimbriate; nectar ring a low, thin membrane; limen cupuliform, laxly surrounding base of gynophore, the margin recurved; ovary subglobose, pruinose, glabrous; fruit globose, about 2.5 cm. in diameter, yellowish; seeds obovate, about 3 mm. long, 2 mm. wide, finely reticulate.

TYPE LOCALITY: Fuerte de Andalgala, Catamarca, Argentina.

DISTRIBUTION: Southern Bolivia and northern Argentina, up to 2,800 meters altitude.

BOLIVIA: Tarija: Tarija, *Fiebrig 1177* (S), *1205* (S), *3051* (B, BM, Gen, S).

PARAGUAY: Río Paraná, *Calot 60* (P).

ARGENTINA: Jujuy: 1,300 meters, *Claren 11812* (S). Tileana, *Venturi 9215* (N), *9216* (N).—Salta: Campo Quijano, 1,600 meters, *Venturi 8085* (G, N). Candelaria, *Venturi 3691* (N). Alemania, *Venturi 9917* (G).—Catamarca: Fuerte de Andalgala, *Lorentz 318* (B, type, K); *Jörgensen 1210* (Cal, G, N); *Schickendantz 23* (B), *105* (B), *146* (Gen). Alpachiri, *Jörgensen 1914* (G, Mo, N).—Tucumán: Cueva de La Vega, 550 meters, *Venturi 2244* (G, K, N).—Chaco: Las Buenas, 250 meters, *Venturi 9800* (BM, G, Mo, N).—La Rioja: Cuesta de La Puerta de Piedra, *Hieronymus & Niederlein 95* (B, N).—Buenos Aires: Buenos Aires, *Tweedie* (S).

From *P. tucumanensis*, the only other species of this group with glandless petioles, this differs most conspicuously in the broader, obtuse leaf lobes.

273. *Passiflora tucumanensis* Hook. Bot. Mag. 65: *pl. 3636*. 1839.

Plant glabrous throughout; stem angular, subterete below, sulcate, glaucescent; stipules semi-ovate-lanceolate, 1.5 to 3 cm. long,

0.5 to 1.5 cm. wide, acute, aristate, rounded at base, serrate, the serrations often glandular; petioles up to 3 cm. long, glandless; leaves 3-5-lobed about four-fifths their length (lobes narrowly oblong-lanceolate, 4 to 6 cm. long, 0.7 to 1.5 cm. wide, acutish or obtusish, mucronulate, glandular-serrulate or -serrate in sinuses with 3 to 6 serrulations), cordulate and finely serrulate at base, 3-5-nerved, membranous, dark green above, glaucescent beneath; peduncles up to 2.5 cm. long, slender; bracts ovate-cordate, 5 to 10 mm. long and wide, acute, apiculate, serrate, thin-membranous, borne close to base of flower; flowers 4 to 5 cm. wide; calyx tube campanulate; sepals oblong-lanceolate, about 5 mm. wide, cucullate, awned, the awn foliaceous, green, 5 to 10 mm. long, green without, white within; petals subequal to sepals, white; corona filaments in several ranks, the outer 2 about two-thirds as long as the petals, white, purple-banded, the inner filaments capillary, 1 to 1.5 mm. long, white, tipped with blue; operculum membranous, incurved, denticulate; limen membranous, annular; ovary ovoid, glabrous, pruinose; fruit ovoid, 4 to 5 cm. long, 3 to 3.5 cm. in diameter; seeds obovate, about 5 mm. long, reticulate.

TYPE LOCALITY: Tucumán, Argentina.

ILLUSTRATION: Bot. Mag. 65: pl. 3636.

DISTRIBUTION: Northwestern Argentina, between 300 and 700 meters altitude.

ARGENTINA: *Lorentz & Hieronymus* 748 (B).—Salta: *Lorentz & Hieronymus* in 1873 (B, N).—Tucumán: *Tweedie* 181 (K), 1173 (K, type). Río Salí, *Venturi* 2173 (G, N). El Puestito, Burroyaco, *Venturi* 7451 (F, G, N). Estación Guzmán, Cruz Alta, *Venturi* 2227 (N). Cañar Pozo, Leales, *Venturi* 657 (N).

An absence of glands on the petioles but an increased number in the sinuses between the lobes characterize this species. The leaf lobes are proportionately much narrower than in other species of this group. Many specimens referred to this prove to be *P. naviculata* or *P. tenuifila*.

274. *Passiflora gritensis* Karst. *Linnaea* 30: 163. 1859 or 1860.

Plant glabrous throughout; stem slender, terete; stipules semi-oblong, 1.3 to 2.5 cm. long, 5 to 10 mm. wide, aristulate, serrate-dentate, teeth gland-tipped; petioles up to 3 cm. long, 4-glandular, the glands filiform, about 3 mm. long; leaves 3-lobed to within 8 mm. from base, 3 to 8 cm. along midnerve, 2.5 to 7.5 cm. along lateral nerves, 4.5 to 10 cm. between apices of lateral lobes (lobes

narrowly oblong, 0.5 to 1.5 cm. wide, acute, aristulate, glandular-serrulate in sinus), rounded or cordulate at base, membranous; peduncles very long and rather stout, 25 to 35 cm. long; bracts borne at apex of peduncle, verticillate, ovate, 1 to 1.2 cm. long, 6 to 7 mm. wide, acute and aristulate at apex, subacute at base; flowers about 10 cm. wide, rose-colored; sepals lance-oblong, about 1 cm. wide at base, obtuse, dorsally keeled, the keel terminating in a foliaceous awn 1 to 1.3 cm. long; petals linear, 1.5 to 2 cm. long, about 3 mm. wide, obtuse; corona filaments narrowly liguliform, in 2 series, the outer 2 to 2.5 cm. long, the inner 5 to 7 mm. long; operculum about 2 cm. long, erect, filamentose nearly half its length; limen cupuliform, closely surrounding base of gynophore; ovary ellipsoidal.

DISTRIBUTION: Western Venezuela, at an altitude of about 2,500 meters.

VENEZUELA: Mérida: Near Mérida, *collector not known*, No. 1202 (P).—Táchira: La Grita, 2,500 meters, *Karsten* (V, type).

This and another Karsten species, *P. meridensis*, Masters knew only from description, and their identity has never been well established since. The type of *P. gritensis*, in the Vienna Herbarium, though consisting only of the upper part of the stem, with a stipule, leaf, and peduncle attached, agrees perfectly with an excellent specimen from an adjacent Venezuelan state, which I decided was a new species but fortunately had not described. The coronal structure indicates that the species was correctly placed in *Granadilla* by Karsten, though the very long peduncle suggests certain tacsónias; indeed, the vegetative parts are very similar to those of *P. semiciliosa*, the type of the subgenus *Granadillastrum*.

275. *Passiflora Sprucei* Mast. in Mart. Fl. Bras. 13, pt. 1: 568. 1872.

Plant glabrous throughout; stipules semi-ovate, 1.5 to 3 cm. long, 0.5 to 1.2 cm. wide, mucronulate, rounded at base, undulate; petioles up to 3 cm. long, bearing 2 to 4 sessile glands less than 1 mm. long; the leaves 3-lobed to or below middle (lobes lanceolate or oblong-lanceolate, acute or acutish, serrulate or subentire, the middle lobe produced, the lateral lobes divergent), 5-nerved, peltate about 2 mm. from lower margin, green or glaucous beneath; peduncles up to 5 cm. long; bracts oblong or lance-oblong, about 1.5 cm. long, 5 to 8 mm. wide, acute, borne close to base of flower; flowers up to 7 cm. wide; calyx tube campanulate; sepals linear-oblong, 5 to 7 mm. wide,

obtuse, green without, lilac, rose-purple, or violet within, carinate, the keel terminating in an awn 5 to 7 mm. long; petals lanceolate, subequal to sepals, lilac, rose-purple, or violet; corona filaments in several series, those of the outer 2 filiform, about two-thirds as long as the petals, transversely banded with lilac and purple, those of the succeeding 4 or 5 series 2 to 3 mm. long, erect; operculum erect, membranous in lower quarter, above filamentose, the filaments up to 1 cm. long, banded with lilac and purple; nectar ring a low ridge; limen tubular, about 5 mm. high, crenulate, erect, closely surrounding gynophore; ovary narrowly ellipsoidal.

TYPE LOCALITY: Río de Ventana, near Guayaquil, Ecuador.

DISTRIBUTION: Coastal region, Ecuador, extending to 2,000 meters altitude, according to Lehmann.

ECUADOR: "In tropical forests." *Sodi* (N).—Guayas: Río de Ventana, near Guayaquil, *Spruce* 6459 (BM, K, type). Balao, *Eggers* 14436 (B, N). San Ignacio, *Heilborn* 117 (S).—Chimborazo: Between Huigra and Naranjapata, 600 meters, *Hitchcock* 20636 (N).—León: Naranjal, *Spruce* 8014 (K).—Loja: Las Juntas, 1,800–2,000 meters, *Lehmann* 4834 (N).

276. *Passiflora tenuifila* Killip, Journ. Wash. Acad. Sci. 17: 430. 1927.

Plant glabrous throughout; stem terete or the younger parts subangular; stipules semi-oblong or subreniform, 1 to 4 cm. long, 0.5 to 2 cm. wide, obtuse or acutish, mucronulate at apex, rounded at base, subentire, glaucescent beneath; petioles 2 to 5 cm. long (extremes up to 11 cm.), 2–6-glandular, the glands up to 2 mm. long, thickened at base, scattered or subopposite; leaves 3.5 to 9 cm. along midnerve, 3 to 8 cm. along lateral nerves, 5 to 14 cm. between apices of lateral lobes, 3-lobed from two-thirds to three-quarters their length (lobes oblong or obovate-oblong, 1 to 3.5 cm. wide, rounded or obtuse, mucronulate at apex, glandular-serrulate in the acutish sinuses, the middle lobe narrowed at base), cordate, 5-nerved, subpeltate, membranous, glaucescent beneath; peduncles 3 to 8 cm. long, slender, articulate less than 2 mm. from apex; bracts cordate-ovate, 1 to 1.5 cm. long, 0.6 to 1.2 cm. wide, abruptly acute and mucronate at apex, glandular-serrulate at base, glaucous, borne at point of articulation, persistent; flowers up to 4.5 cm. wide, the tube patelliform, introrse at base; sepals linear-oblong, 10 to 15 mm. long, 5 to 7 mm. wide, obtuse, carinate, bright green along the keel, white at margin and within, the keel terminating in a foliaceous awn 4 to 6

mm. long; petals about two-thirds as long and as broad as sepals, obtuse, white; corona filaments capillary, in 4 series, the outer 2 about 5 to 7 mm. long, radiate, white, pale violet at middle, the inner 2 about 1.5 to 2.5 mm. long, white; operculum membranous, 1 mm. high, slightly plicate at margin, filamentose, the filaments attached dorsally just below margin, 1 to 1.5 mm. long; nectar ring a low, fleshy ridge; limen shallowly cupuliform, loosely surrounding base of gynophore; ovary ovoid or subglobose, glaucescent; fruit subglobose, about 4 or 5 cm. in diameter, probably larger, yellow; seeds obovate, about 6 mm. long and 3 mm. wide, closely reticulate, axis slightly curved.

TYPE LOCALITY: Marechal Mallot, Paraná, Brazil.

DISTRIBUTION: Southern Bolivia and southern Brazil to Argentina and Paraguay.

BOLIVIA: Cerro Veladero, *Troll 1146* (B).—Tarija: Chiquiacá, *Fiebrig 3371* (B).—Chaco: Tatarenda, *Fries 1599* (S).

BRAZIL: Paraná: Marechal Mallot, *Dusén 3048* (G, N, type, S). Calmão, *Dusén 9399* (B, Gen, S).—Rio Grande do Sul: Porto Alegre, *Malme 544* (S). Colonia Silveira, *Lindman A1363* (N, S).

PARAGUAY: Alto Paraná River, *Fiebrig 5608* (B), *6230* (B, G, N).

ARGENTINA: Tucumán: Cerro del Campo, 800 meters, *Venturi 7914* (G), *7919* (BM, N). Cumbre de Taficillo, *Venturi 5959* (N).—Chaco: Fontana, *Meyer 1034* (N).—Misiones: *Niederlein 1225* (B). Puerto Aguirre, *Rojas (Ostén 8303; S)*. Bonpland, *Archer 4619* (N).

Part of this material was distributed as *P. caerulea* and *P. tucumanensis*. The species is only remotely related to *P. caerulea*, differing greatly in leaf shape and flower structure. Though belonging to this complex group of granadillas with 3-lobed leaves and foliaceous stipules, it is at once distinguished by the capillary corona rays, and by the petiolar glands being thickest at their base. *Passiflora tucumanensis*, *P. naviculata*, and *P. Giberti* in general appearance closely resemble *P. tenuifila*, but, in addition to having coarser corona rays, the first two have glandless petioles and the third has a distinctly plicate operculum.

LOCAL NAME: "Yogó" (Argentina).

277. *Passiflora lonchophora* Harms, Notizbl. Bot. Gart. Berlin 10: 813. 1929.

Plant glabrous and slightly glaucescent throughout; stem slender, subterete; stipules semi-cordate-oblong, 2 to 3 cm. long, 1 to 1.5 cm.

wide, terminating in a gland-tipped mucro about 3 mm. long; petioles 3 to 4 cm. long, bearing 6 scattered, tuberculiform glands; leaves 3-lobed to well beyond middle, 10 to 13 cm. along midnerve, 8 to 10 cm. along lateral nerves, 12 to 14 cm. at greatest width (lobes acute or subobtusate, the middle lobe oblong-lanceolate, 3 to 3.5 cm. wide, conspicuously narrowed at base, the lateral lobes lanceolate, eglandular in the sinus), shallowly cordulate at base; peduncles solitary, 3 to 4 cm. long; bracts borne about 8 mm. below the base of the flower, lanceolate, 1.5 to 2.2 cm. long, 6 to 7 mm. wide, acute, mucronulate; flowers about 5 cm. wide; calyx tube broadly campanulate; sepals 2.5 to 2.7 cm. long, 7 to 8 mm. wide, dorsally awned just below the apex, the awn foliaceous, 3 to 4 mm. long; petals subequal to the sepals; corona filaments filiform, about 1 cm. long; ovary ovoid.

TYPE LOCALITY: Rio Branco, State of Amazonas, Brazil.

DISTRIBUTION: Known only from the type locality.

BRAZIL: Amazonas: Retiro da Serra da Lua (Sua, in error), *Kuhlmann 3417* (B, type, N, Ut).

The coronal structure is described only briefly by Harms and this portion of the flower of the only specimen I have at hand has been eaten by insects; so the exact position of the species in the present treatment is not certain. The shape of the leaves suggests *P. Pennellii*, but the reduced awns of the sepals, the smaller stipules, and elongate petiolar glands readily differentiate that species from *P. lonchophora*.

278. *Passiflora Giberti* N. E. Brown, Trans. & Proc. Bot. Soc. Edinb. 20: 58. 1896.

Plant glabrous throughout; stipules semi-ovate-lanceolate, 2 to 3 cm. long, 0.7 to 1 cm. wide, acute and mucronate at apex, rounded at base, subentire, oblique; petioles 1 to 3 cm. long, slender, 2-6-glandular, the glands subclavate, about 1 mm. long; leaves 5 to 7 cm. long, 7 to 10 cm. wide (extremes up to 18 cm. long and 22 cm. wide), 3-lobed two-thirds to three-fourths their length, very rarely 5-lobed (lobes oblong-lanceolate, 2 to 2.5 cm. wide, acutish, 1-2-glandular in the sinuses), cordulate, membranous; peduncles 4 to 8 cm. long, stouter than the petioles; bracts ovate, 2 to 2.5 cm. long, 1.5 to 2 cm. wide, acute, mucronulate, serrate near base, borne near base of flower; flowers 6 to 8 cm. wide; calyx tube short-campanulate; sepals oblong-lanceolate, about 3 cm. long, 8 mm. wide, dorsally awned near apex, the awn 1 to 1.5 cm. long, green without, bluish

within; petals oblong, slightly shorter and broader than the sepals, bluish; corona filaments filiform, in about 6 series, the 2 outer 0.6 to 2 cm. long, purple(?), those of the succeeding series decreasing in length from 4 to 2 mm. long; operculum membranous, 2 to 3 mm. high, slightly plicate, bearing adnate to outer surface a row of filaments about 5 to 7 mm. long and within a row of minute tubercles; nectar ring a low ridge; limen tubular, closely surrounding base of gynophore; ovary ellipsoidal, glabrous; fruit ovoid, the pericarp coriaceous, yellowish.

TYPE LOCALITY: Gran Chaco, Argentina.

DISTRIBUTION: South-central Brazil, Paraguay, and northeastern Argentina.

BRAZIL: Matto Grosso: Porto Esperanza, Rio Paraguay, *Chase 11093* (B, N).

PARAGUAY: Pilcomayo River, *Morong 1505* (Y). Asunción, *Balansa 2202* (Bo, K).

ARGENTINA: Chaco: Gran Chaco, *Gibert 43* (K, type). Chaco, *Fiebrig 1453* (B, Gen, K). Barranqueras, *Meyer 2231* (N).

The detailed description of the floral parts here given is drawn mainly from the excellently preserved specimens obtained by Morong, Meyer, and Chase. In the structure of the operculum *P. Giberti* differs slightly from Brown's diagnosis as "membranacea, deflexa, integra." Doubtless Brown considered the row of filaments attached to the operculum as part of the (faucial) corona. In the Meyer specimen the principal corona filaments are less than half as long as in Mrs. Chase's plant; however, as heretofore noted, there is a good deal of difference in the length of these filaments in species of *Granadilla*. Meyer notes that the color of the flowers is blue. This is completely lost in drying.

The plicate operculum at once suggests a relationship with *P. kermesina*, *P. Eggersii*, and *P. Watsoniana*, but the larger bracts, borne close to apex of peduncles, indicate a different relationship.

Passiflora tucumanensis and *P. naviculata*, with which this species might easily be confused, have glandless petioles and a quite different flower structure.

279. *Passiflora Eichleriana* Mast. in Mart. Fl. Bras. 13, pt. 1: 616. pl. 128, f. 5. 1872.

Passiflora violacea f. *albiflora* Chod. & Hassl. Bull. Herb. Boiss. II. 4: 63. 1904.

Plant glabrous throughout; stem terete, slender, purplish; stipules oblong-lanceolate, 1.5 to 3 cm. long, 0.8 to 1.5 cm. wide, acuminate, oblique, rounded at base; petioles 2 to 6 cm. long, bearing 3 or 4 pairs of opposite or subopposite, ligulate glands up to 2 mm. long; leaves 4 to 8 cm. long, 5 to 10 cm. wide, 3-lobed to below middle (lobes oblong, 1 to 3 cm. wide, acute or obtuse, mucronate, entire, the sinuses acutish, 2-4-glandular), cordate and subpeltate at base, 5-nerved, membranous; peduncles 3 to 6 cm. long; bracts ovate, 1 to 2 cm. long, about 1 cm. wide, acute, rounded or cordulate at base, entire or sometimes glandular-denticulate; flowers up to 7 cm. wide; calyx tube campanulate; sepals oblong, about 1 cm. wide, subcoriaceous, bearing a foliaceous awn nearly 1 cm. long; petals oblong, slightly shorter than the sepals, membranous; corona filaments in about 6 series, those of the 2 outer filiform, as long as the petals, radiate, the succeeding ones capillary, 2 to 3 mm. long; operculum membranous at base, filamentose above, bearing within small, inflexed teeth; nectar ring fleshy; limen cupuliform; ovary ovoid, glabrous; fruit globose, about 3.5 cm. in diameter, coriaceous.

TYPE LOCALITY: Southern Brazil.

ILLUSTRATION: Mart. Fl. Bras. 13, pt. 1: *pl.* 128, *f.* 5.

DISTRIBUTION: Eastern Brazil to Paraguay.

BRAZIL: "Southern Brazil," *Sello* 358 (B, BM, K, type).—Minas Geraes: Perna de Páio, *Gardner* 4690 (BM, K).—Matto Grosso: Cuyabá, *Malme* in 1902 (S), in 1903 (S).—Santa Catharina: *Ule* 925 (B, N).

PARAGUAY: Concepción, *Hassler* 7498 (BM, type collection of *P. violacea* f. *albiflora*).

This is one of the species that have been confused with *P. subpeltata* (*P. alba*). The presence of dentiform processes on the inside of the operculum, suggesting the fringe on the outside of the operculum, characteristic in the section *Kermesinae*, distinguishes it from near relatives. The petiolar glands in the specimens cited above are more elongate than is shown in Masters' illustration.

280. *Passiflora subulata* Mast. in Mart. Fl. Bras. 13, pt. 1: 566. 1872.

Passiflora platyceras Harms, Repert. Sp. Nov. 18: 298. 1922.

Plant glabrous throughout; stem terete, glaucescent; stipules semi-oblong-lanceolate, 2 to 3.5 cm. long, 1 to 1.5 cm. wide, acute and mucronulate at apex, rounded at base, oblique; petioles 2 to

5 cm. long, biglandular at or above middle, the glands short-stipitate; leaves 4 to 7 cm. long, 5 to 8 cm. wide, 3-lobed to middle (lobes oblong or ovate-oblong, 1.5 to 2.5 cm. wide, obtuse, ascending, glandular-serrulate in the sinuses), cordate or merely emarginate at base, subpeltate, 5-nerved, subcoriaceous, glaucescent beneath; peduncles 7 to 10 cm. long; bracts ovate or oblong-ovate, 1.5 to 2.5 cm. long, 1 to 1.5 cm. wide, cordate, obscurely serrulate, borne close to base of flower; flowers 6 to 8 cm. wide; calyx tube broadly campanulate; sepals oblong-lanceolate, about 1 cm. wide, green without, white within, cucullate, carinate, the keel terminating in a green, foliaceous awn 8 to 12 mm. long, 2 to 3 mm. wide; petals lanceolate, shorter and narrower than the sepals; corona filaments in 3 series, the outermost capillary, about 2 cm. long, those of the second series capillary, 3 mm. long, capitellate, those of the inner narrowly linear, 2 mm. long, capitellate; operculum erect, fimbriate to middle, the threads about 5 mm. long; nectar ring fleshy; limen cupuliform, about 5 mm. high, erect, closely surrounding gynophore; ovary subovoid, pruinose.

TYPE LOCALITY: Huacapistana, Tarma, Peru.

DISTRIBUTION: Mountains of central Peru, from 2,000 to 2,500 meters altitude.

PERU: *MacLean* (K, type).—Junín: Huacapistana, *Weberbauer* 2171 (B, type of *P. platyceras*); *Killip & Smith* 24311 (N), 24323 (F, N, Y). San Talystem, *Weberbauer* 6542 (B).—(?)Cuzco: Río Yanamayo, *Pennell* 14060 (Ph).

The very prominent awns of the sepals distinguish this from near relatives of the Andes. The type of *P. platyceras* agrees exactly with the type of *P. subulata*; Masters' statement that the petiolar glands are sessile is inaccurate.

The Pennell specimen is referred here doubtfully. The leaves are much less deeply lobed; but as the specimen is without flowers, or even peduncles or bracts, positive determination is impossible.

281. *Passiflora resticulata* Mast. & André, Journ. Linn. Soc. 20: 42. 1883.

Plant glabrous throughout, brownish yellow when dry; stem slender, wiry, terete or subangulate, several secondary branches (up to 15 cm. long) arising from the main stem; stipules oblong, 1.2 to 1.5 cm. long, 0.7 to 0.9 cm. wide, oblique, acute, serrulate; petioles up to 5 cm. long, slender, bearing 1 or 2 pairs of minute, stipitate glands; leaves 5 to 7 cm. long, 7 to 8 cm. wide, 3-lobed one-third their length (rarely slightly more, not to one-half their length;

lobes ovate or suborbicular, subequal, 2.5 to 3 cm. long, 2 to 2.5 cm. wide, rounded or obtuse), truncate and subpeltate at base, 5-nerved; peduncles slender, 7 to 8.5 cm. long; bracts lanceolate, about 2 cm. long, and 8 mm. wide, acute, borne close to flower; flowers about 5 cm. wide; sepals oblong-lanceolate, foliaceous-awned; petals linear-lanceolate, obtuse; corona filaments in several series, the 2 outer one-third as long as the petals, the succeeding series gradually shorter; operculum membranous at base, filamentose(?); ovary ellipsoidal, pruinose; fruit ellipsoidal, 5 cm. in diameter; seeds flattened, erose-lobed at margin.

TYPE LOCALITY: San Florencio, Mt. Corazón, Ecuador.

DISTRIBUTION: Central and Western Cordilleras of Colombia to Ecuador, 1,500 to 2,500 meters.

COLOMBIA: Tolima: Río Azufral, Quindío Trail, *Killip & Hazen 9596* (N, Ph). Quebrada Cajamarca, New Quindío Trail, *Killip 9756* (N).—El Valle: Río Dagua, *Lehmann 4838* (B, K); *André 2534* (K).—El Cauca: San José, *Pennell 7625* (N, Y). Quebrada de Armada, *André 3904bis* (K).

ECUADOR: Canoa, *Eggers 15469* (B). Río Pilatón, *Sodirol* (N).—Pichincha: Mt. Corazón, *André 2568* (K, type), *3733* (K).—León: Naranjal, *Lehmann* (K).

This species is recognized among its Colombian and Ecuadorean relatives by its shallowly lobed leaves. Detailed information as to the structure of the operculum was not given by Masters, and the sheets here cited, except the type, are either barren or have very immature flowers.

282. *Passiflora Pennellii* Killip, Journ. Wash. Acad. Sci. 14: 114. 1924.

Plant glabrous throughout; stem slender, terete, or subangulate above; stipules subreniform, 9 to 10 mm. long, 4 to 5 mm. wide, aristate, coriaceous, reticulate-veined; petioles up to 2.5 cm. long, 6–8-glandular (glands stipitate, 1.5 mm. long); leaves 5 to 7 cm. long, 7 to 10 cm. wide, 3-lobed to 1 or 1.5 cm. from base (lobes narrowly lanceolate or elliptic-lanceolate, 1 to 2 cm. wide, acute or obtusish, glandular in the sinuses, the middle lobe narrowed at base), subpeltate and subtruncate or subcordate at base, 5-nerved, reticulate-veined, coriaceous, green on both surfaces, lustrous above; peduncles up to 5 cm. long; bracts ovate-lanceolate, 8 to 10 mm. long, 3.5 to 5 mm. wide, acute, slightly narrowed at base, borne about 8 mm. below base of flower; flowers 5 to 6 cm. wide; sepals oblong-lanceolate,

1.5 to 1.8 cm. long, 7 to 8 mm. wide, obtuse, dorsally awned with a short, setaceous awn, reticulate-veined, green without, white within; petals oblong-lanceolate, 1.8 to 2 cm. long, 1 cm. wide, obtuse, white; corona filaments white, in several series, those of the 2 outer narrowly liguliform, 2 to 2.5 cm. long, 0.8 mm. wide, the succeeding 2 or 3 series narrowly linear, 5 to 6 mm. long, 0.4 mm. wide; operculum 6 to 7 mm. long, nonplicate, the lower half membranous, deflexed, the upper half erect, filamentose; limen cupuliform, 1 mm. high, crenulate; ovary ovoid.

TYPE LOCALITY: Susumuco, southeast of Quetamé, Cundinamarca, Colombia.

DISTRIBUTION: Known only from the type locality, in the Eastern Cordillera of Colombia, and from a specimen of uncertain origin in the Instituto de La Salle, Bogotá.

COLOMBIA: Cundinamarca: Susumuco, southeast of Quetamé, 1,200 to 1,400 meters, *Pennell 1729* (Y, type).

The deep lobation of the leaves is the most striking differential character between this and its near allies. The shape of the leaves is more like *P. Lehmanni* or *P. trisulca*, of the series *Kermesinae*.

283. *Passiflora stipulata* Aubl. Pl. Guian. 830. pl. 325. 1775.

Passiflora glauca Dryand. in Ait. Hort. Kew. 3: 308. 1789.

Plant glabrous throughout; stem terete; stipules semi-ovate, 1 to 3 cm. long, 0.5 to 1 cm. wide, oblique, acute and aristulate at apex, rounded at base; petioles up to 5 cm. long, bearing 2 to 5 minute, sessile glands; leaves 5 to 8 cm. long, 7 to 10 cm. wide, 3-lobed to middle (lobes broadly ovate, 3 to 5 cm. wide, abruptly acuminate or acutish, glandular in sinuses), subpeltate and cordate at base, 5-nerved, membranous, glaucous beneath; peduncles 2 to 5 cm. long; bracts lanceolate, about 1.5 cm. long and 6 mm. wide, acute, sessile, borne at base of flower; flowers 5 to 6 cm. wide; calyx tube turbinate-campanulate; sepals oblong-lanceolate, 2.5 to 3 cm. long, 1 cm. wide, green without, paler within, keeled, the keel terminating in a mucro barely 2 mm. long; petals as long as the sepals, white; corona filaments filiform, in several series, the 2 outer as long as the petals, white, violet at base, radiate, the succeeding series much shorter, 2 to 3 mm. long, erect; operculum about 1 cm. high, filamentose nearly to base; limen tubular, closely surrounding base of gynophore; ovary ovoid, glabrous.

TYPE LOCALITY: Near Mt. Serpent, French Guiana (cultivated).

ILLUSTRATIONS: Aubl. Pl. Guian. *pl.* 325; Bot. Reg. 1: *pl.* 88.

DISTRIBUTION: French Guiana, but perhaps not indigenous there; frequently cultivated.

CALIFORNIA: Pacific Beach, *Kumm* in 1930 (N).

BERMUDA: Herrington Sound, cultivated, *Brown & Britton* 1729 (Y). St. George's, cultivated, *Brown, Britton & Worthley* 1782 (Y).

CUBA: Habana: Puentes Grandes, cultivated, *León* 639 (HS, Y).

ST. THOMAS: Cultivated, *Britton, Britton & Kemp* 33 (Y).

FRENCH GUIANA: Cultivated in England by Kennedy & Lee (K, type of *P. glauca* Ait.).

Passiflora stipulata is the earliest described member of this group, and the name has been variously applied to a number of species. Aublet gives a meager description of only the vegetative parts, and no flowers, bracts, or peduncles are shown in his illustration. The type locality was French Guiana.

Passiflora glauca, described in the *Hortus Kewensis* in great detail, also was based on a French Guiana plant, and there seems no reason to doubt that it is the same species as Aublet's. Indeed, in the *Botanical Register* (1: *pl.* 88. 1815) *P. stipulata* is given as a synonym for *P. glauca*. In the *Flora Brasiliensis* Masters separated the two species, but cited no specimens of *P. stipulata*. Later (Journ. Linn. Soc. 20: 44. 1883), in pointing out the distinguishing characters of *P. stipulata*, *P. glauca*, *P. alba* (*P. subpeltata*), and *P. reticulata*, he gave a more detailed diagnosis of *P. stipulata*, mentioning certain characters that would distinguish *P. stipulata* from *P. glauca*, and citing a specimen from British Guiana which he had taken for *P. stipulata*. However, this specimen, which I saw at Kew, is *P. Garckeii*, so the differences noted by Masters are not between *P. glauca* and *P. stipulata* but between *P. stipulata* and *P. Garckeii*.

The type of *P. glauca*, in the British Museum, is in an excellent state of preservation, and the diagnosis given above has been drawn mainly from it, and from cultivated specimens.

The region in which this species is native is uncertain. Aublet states that his plant was collected in cultivated places, a fact which suggests that it may not have been indigenous at the type locality. Cultivated specimens of this are frequent in European herbaria, their labels indicating that they came from plants grown in gardens associated with the herbaria. A plant was in full flower at the

beautiful Schönbrunn Gardens at Vienna at the time of my visit in 1935.

284. *Passiflora aristulata* Mast. in Mart. Fl. Bras. 13, pt. 1: 570. 1872.

Plant glabrous throughout; stem terete, slender; stipules cordate or semicordate, 10 to 15 mm. long, 8 to 10 mm. wide, aristulate; petioles 2 to 3 cm. long, filiform, biglandular near middle, the glands about 1 mm. long; leaves 3-lobed about to middle, 3 to 4 cm. along midnerve, 1.5 to 2.5 cm. along lateral nerves, 4 to 6 cm. between apices of lateral lobes (lobes broadly oblong-lanceolate, 1 to 1.5 cm. wide, entire, subequal, the lateral lobes horizontally divergent); petioles 1.5 to 2 cm. long; bracts broadly ovate, about 10 mm. long; 8 mm. wide, cordulate, sessile, borne at base of flower, thin-membranous; flowers 3 to 4.5 cm. wide; calyx tube campanulate; sepals oblong, 1.2 to 2 cm. long, 4 to 6 mm. wide, cucullate, dorsally minutely subulate-mucronate, conspicuously reticulate; petals ovate-lanceolate, slightly shorter than sepals, obtuse, purplish(?); corona filaments in 4 series, the outer 2 filiform, about half as long as the petals, those of the inner 2 series narrowly linear, subclavate, about 1 mm. long; operculum membranous, fimbriate in upper half, the fringe 1.5 to 2 mm. long; limen cupuliform, closely surrounding base of gynophore; ovary ovoid.

TYPE LOCALITY: Tarapoto, Peru.

DISTRIBUTION: Northern Peru.

PERU: San Martín: Tarapoto, *Spruce 3988* (K, type). Juanjuí, Río Huallaga, *Poeppig* in 1830 (Bo, V).—Loreto: Lower Río Huallaga, 200 meters, *L. Williams 5180* (N). Río Marañón, *Mexia 6424* (N).

The three Peruvian species, *P. tarapotina*, *P. subulata*, and *P. aristulata*, have leaves of rather similar outline, though in *P. aristulata* the lateral lobes are horizontally spreading, ascending in the two others. The flowers of the three, however, differ markedly. *Passiflora tarapotina* has a well developed calyx tube, and belongs to the subgenus *Granadillastrum*. *Passiflora aristulata* may be distinguished from *P. subulata* by the shorter tips of the sepals and by its different coronal structure.

Passiflora aristulata is known only from northern Peru. Masters misidentified a Lehmann collection (No. 105) of *P. reflexiflora*, from the coastal region of Ecuador, as this.

The Poeppig sheets are labeled "P. pallens Poepp. diar.," and the one at the Boissier Herbarium had evidently been lent to Masters. From it Masters apparently derived the name "P. pallens Poepp." for a Cuban plant, which, though of this general relationship, is specifically distinct from the Poeppig Peruvian material. Masters cited no Poeppig specimen under *P. pallens*, and his illustration depicts the Cuban species. The Poeppig specimen is probably the one he cited as *P. alba* (*P. subpeltata*).

285. *Passiflora cyanea* Mast. in Mart. Fl. Bras. 13, pt. 1: 570. 1872.

Passiflora monticola J. R. Johnston, Proc. Amer. Acad. 40: 692. 1905.

Plant glabrous throughout; stem subterete or angulate; stipules semi-oblong-lanceolate, 2 to 4.5 cm. long, 1 to 2 cm. wide, mucronate, subentire or slightly serrulate, reticulate-veined; petioles up to 3 cm. long, 2-4-glandular near middle, the glands minute, sessile; leaves 6 to 10 cm. long, 7 to 15 cm. wide, 3-lobed to below middle or occasionally asymmetrically 4-lobed (lobes oblong or ovate-oblong, obtuse or acute, bearing 1 or 2 glands in sinuses, the middle lobe usually much narrowed at base), subentire or finely serrulate, subpeltate and truncate or rarely subcordate at base, 5-nerved, coriaceous or subcoriaceous; peduncles up to 5 cm. long; bracts ovate-lanceolate, 4 to 5 mm. long, 2 to 3 mm. wide, acute, narrowed at base, borne 8 to 10 mm. from base of flower; flowers up to 5 cm. wide, blue or purplish; calyx tube turbinate-campanulate; sepals oblong, 2 to 2.5 cm. long, 6 to 8 mm. wide, green without, dorsally awned, the awn up to 5 mm. long; petals oblong, 2 to 2.5 cm. long, 5 to 7 mm. wide; corona filaments in several series, those of the outer 2 or 3 series filiform, 1 to 1.3 cm. long, radiate, those of the succeeding series capillary, 2 mm. long, capitellate; operculum membranous and deflexed below, the upper two-thirds filamentose and erect, the filaments 5 to 6 mm. long; limen cupuliform, closely surrounding gynophore; ovary ovoid, stipitate, glaucous; fruit globose, 2.5 to 3 cm. in diameter; seeds obovate, 5 to 6 mm. long, 3 to 4 mm. wide, 3-toothed at apex, coarsely reticulate.

TYPE LOCALITY: Near Caracas, Venezuela.

DISTRIBUTION: Trinidad and northern Venezuela.

TRINIDAD and TOBAGO: Britton 2456 (G, N, T, Y), 2631 (G, N, Y); Coker & Rowland 674 (G, N, Y); Fendler 374 (BM, N); Eggers 5583 (B); Broadway 2574 (B, Cop, F, Y), 3117 (B), 3591 (B);

Trinidad Herb. 2596 (T), 2597 (T), 5268 (T), 10392 (T), 10393 (T), 10394 (T), 11542 (T).

VENEZUELA: *Fendler II.469* (K). San Juan Mountains, *J. R. Johnston* 64 (B, Cop, G, type of *P. monticola*, N).—Federal District: Caracas, *Burchell* (K, type); *Pittier* 10267 (Gen, N, P, Y); *Oslo* 410 (V). La Guaira, *Otto* 477 (B); *Moritz* 1720 (BM).

This species was placed by Masters at the end of his monograph, among a number of species of doubtful relationship. Bracts were lacking and the operculum evidently was in unsatisfactory condition in the type specimen. This specimen is identical, however, with recently collected material, from which the above diagnosis has been drawn.

286. *Passiflora Garckeii* Mast. Trans. Linn. Soc. 27: 639. 1871; in Mart. Fl. Bras. 13, pt. 1: 571. 1872.

Passiflorae (Sect. *Granadillae*) species Garcke Linnaea 22: 60. 1849.

Passiflora pruinosa Mast. Gard. Chron. III. 22: 393. f. 117. 1897.

Passiflora glaucophylla Pulle, Enum. Pl. Surinam 323. pl. 14, f. 1, 2, pl. 15. 1906.

Plant glabrous throughout; stem terete, or slightly angulate above; stipules semi-ovate or subreniform, 3 to 5 cm. long, 1.5 to 2 cm. wide, mucronate, reticulate-veined, remotely glandular-serrulate, coriaceous; petioles up to 10 cm. long, 4–6-glandular, the glands sessile, scattered; leaves 8 to 15 cm. long, 10 to 25 cm. wide, 3-lobed to middle (lobes oblong-lanceolate, acute, acuminate, or occasionally obtuse, usually glandular in the sinuses, the middle lobe scarcely narrowed at base), subpeltate, truncate or subcordate, entire or minutely serrulate, reticulate-veined, coriaceous, 5–7-nerved, usually glaucous beneath; peduncles up to 6 cm. long; bracts oblong-lanceolate, 6 to 10 mm. long, 4 to 6 mm. wide, acuminate, subcordate, borne 1 to 1.5 cm. below base of flower; flowers 7.5 to 8.5 cm. wide; calyx tube campanulate; sepals oblong, 3.5 to 4 cm. long, 0.8 to 1 cm. wide, cucullate, dorsally awned (awn 2 to 4 mm. long), green without, blue or purplish within; petals oblong, 3 to 3.5 cm. long, 1 to 1.2 cm. wide, obtuse, blue or purplish; corona filaments in several series, those of the 2 or 3 outer series filiform, 3 to 3.5 cm. long, violet below, yellow above, the succeeding ones capillary, 5 to 8 mm. long, capitate, whitish or yellowish; operculum white, membranous and deflexed at base, the upper two-thirds erect and filamentose; limen cupuliform; ovary ovoid, glaucous; fruit subellipsoidal.

TYPE LOCALITY: Surinam (type, *Kegel* 858).

ILLUSTRATIONS: Gard. Chron. III. 22: f. 117; Pulle, Enum. Pl. Surinam pl. 14, f. 1, 2, pl. 15; Bot. Mag. 125: pl. 7643.

DISTRIBUTION: Guianas.

FRENCH GUIANA: *Richard* (P); *Herb. Rohr* (BM).

SURINAM: Saramacca River, *Pulle* 223 (Ut, type of *P. glaucophylla*). Marowijne River, *Wullschlägel* 1476 (Brux). Brownsberg, B. W. 708 (Ut), 6294 (Ut).

BRITISH GUIANA: *Im Thurn* (K, type of *P. pruinosa*). Demerara, *Hancock* (K). Potaro Road, A. W. *Bartlett* (*British Guiana Herb.* 140; BG); *Hitchcock* 17405 (G, N, Y). Barima River, *Ward* (N); *Jenman* 7179 (BG). Moruka River, *De la Cruz* 973 (N, Y). Issorora, *Abraham* (*British Guiana Herb.* 138; BG). Upper Mazaruni River, *De la Cruz* 4249 (N, Y).

This is readily distinguished from *P. cyanea* by larger, thicker leaves, the middle lobe having nearly straight sides and the lateral lobes being more widely divaricate, and by the much longer filaments of the outer corona.

This plant was first described by Garcke; although the description is in much detail, the author assigned no specific name.

Series 15. *Menispermifoliae*

287. *Passiflora menispermifolia* HBK. Nov. Gen. & Sp. 2: 137. 1817.

Passiflora menispermifolia var. *cuellensis* Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 154. 1873.

Passiflora villosa Dombey ex Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 154. 1873, as synonym. Not *P. villosa* Vell.

Plant densely hispid-hirsute nearly throughout with spreading, light brown hairs; stem terete or angulate upward, striate; stipules subreniform, 1.5 to 3.5 cm. long, 1 to 1.5 cm. wide, cuspidate at one end, rounded at the other, glandular-denticulate or subentire; petioles 3 to 4 cm. long, bearing 2 to 4 short-stipitate or sessile glands; leaves broadly lanceolate or suborbicular in general outline, 10 to 16 cm. long, 8 to 13 cm. wide, angulately 3-lobed (lobes acute or rounded, the middle lobe much larger, up to 10 cm. wide, broadly ovate-deltoid), cordate, 5-7-nerved, remotely glandular-denticulate to dentate, sparingly or densely appressed-pilose above, densely hispid-hirsute beneath; peduncles 4 to 6 cm. long; bracts narrowly

lanceolate or elliptic-lanceolate, 1 to 2 cm. long, 4 to 5 mm. wide, acuminate, cuspidate, acute to cordulate at base, glandular-denticulate; flowers up to 6 cm. wide, violet; sepals lance-oblong, 2 to 2.5 cm. long, about 1 cm. wide, aristulate; petals linear-oblong, 2.5 to 3 cm. long, about 0.8 cm. wide, obtuse; corona filaments in several series, those of the outermost filiform, about 2 cm. long, the succeeding filaments very dense, 5 to 7 mm. long; operculum membranous, divided above middle into numerous capillary filaments about 5 mm. long; limen membranous, closely surrounding base of gynophore, minutely serrulate; ovary ovoid, obtuse, glabrous; fruit narrowly ovoid, 6 cm. or more long, about 2 cm. in diameter; seeds obovate, about 5 mm. long, 3 mm. wide, coarsely reticulate.

TYPE LOCALITY: Between Tomependa and Jaen de Bracamoras, Peru.

ILLUSTRATION: Mutis, Icon. Pl. Ined. 26: *pl.* 17, 18.

DISTRIBUTION: Nicaragua to eastern Colombia and south to southeastern Peru and Amazonian Brazil; sea level to 1,500 meters altitude.

NICARAGUA: Chontales, *R. Tate* 111 (K).

COSTA RICA: Tilarán, *Standley & Valerio* 44543 (N). Tsaki, *Tonduz* 9592 (BM, Bo, Brux, N).

PANAMA: Canal Zone: Gatuncillo, *Piper* 5623 (N).

COLOMBIA: Santander: Between Nariño and El Tambor, *Killip & Smith* 14945 (A, G, N, Y).—Boyacá: Chapón, *Laurance* 401 (S).—Cundinamarca: Pacho, *Ariste Joseph* B63 (N). Below Bogotá, *Tracey* 64 (K).—Tolima: Río Cuello, *Goudot* (K, P, type of *P. menispermifolia* var. *cuellensis*).

ECUADOR: *Sodiro* (N).

PERU: *Dombey* (P, type of *P. villosa* Dombey); *Mathews* 2074 (K).—Cajamarca: Between Tomependa and Jaen de Bracamoras, *Humboldt & Bonpland* (B, type).—Loreto: Yurimaguas, *Killip & Smith* 28705 (F, N, Y). Canchahuaya, Río Ucayali, *Huber* 1408 (Go). Balsapuerto, *Klug* 3091 (Gen, N).—Huánuco: Chinchao, *Ruiz & Pavón* (Ma).—Ayacucho: Aina, *Killip & Smith* 22795 (F, N, Y).—Cuzco: Urubamba Valley, *Cook & Gilbert* 1085 (N).

BRAZIL: Amazonas: Rio Embira, *Krukoff* 4897 (Gen, N, Ut, Y).

This and the following three species are at once recognizable by the dense indument which clothes them throughout. Though of wide range, *P. menispermifolia* apparently is not common.

Masters confused this species with De Candolle's description of *P. pilosa*, a wholly different plant of the subgenus *Plectostemma*. Triana and Planchon, in addition to pointing out the impossibility of associating *P. menispermifolia* with *P. pilosa*, described a variety, *P. menispermifolia* var. *cuellensis*, from Colombia, on the basis of broader, denticulate rather than dentate leaves, and sessile, not stipitate, glands. Most of the specimens here cited have the denticulate leaves of the variety but short-stipitate glands as well. The variety is hardly different enough from the Humboldt type to be treated independently.

288. **Passiflora crassifolia** Killip, Journ. Wash. Acad. Sci. 20: 380. 1930.

Stem subterete, striate, densely villous with spreading, grayish hairs; stipules subreniform, 1.5 to 2.5 cm. long, 0.6 to 1 cm. wide, subamplexicaul, aristate (awn about 4 mm. long), reticulate-veined, coriaceous, glabrous above, villous on veins beneath and at margin; petioles villosulous, 2 to 6 cm. long, bearing 4 to 6 subsessile glands, dissitate the whole length of the petioles, 0.6 to 0.8 mm. in diameter; leaves lanceolate or ovate-lanceolate, 10 to 18 cm. long, 6 to 12 cm. wide, not lobed or occasionally obsoletely lobed in lower third, obtuse at apex, deeply cordate at base with a narrow sinus, entire or sparingly serrulate toward base, 7-nerved, reticulate-veined (nerves and veins prominent beneath), entire, thick-coriaceous, dark green and glabrous above, paler and appressed-villous on the nerves and veins beneath; peduncles solitary, about 5 cm. long, villous; bracts lanceolate, 1.5 to 2 cm. long, 7 to 8 mm. wide, sharp-acuminate at apex, cordulate, subsessile, glabrous above, villous on nerves and veins beneath, borne about 5 mm. below base of flower; calyx tube tubular-campanulate, about 5 mm. long, 6 mm. in diameter; sepals oblong, dorsally awned, the awn 2 to 3 mm. long; corona filaments in 3 or 4 series, the outermost about 7 mm. long; operculum membranous, about 5 mm. high, filamentose in upper half; fruit ovoid or ellipsoidal, 4 to 6 cm. long, 2 to 2.5 cm. wide, villosulous; seeds narrowly oblong, 6 to 7 mm. long, 2 to 3 mm. wide, shallowly tridentate at apex, coarsely reticulate.

TYPE LOCALITY: La Merced, Junín, Peru.

DISTRIBUTION: East-central Peru, 600 to 700 meters altitude.

PERU: Junín: La Merced, Killip & Smith 23382 (N, Y), 23434 (N, type); Macbride 5371 (F, N). Colonia Perené, Killip & Smith 25181 (N, Y).

This species is related to *P. menispermifolia* and *P. nephrodes*, but differs from both in having essentially entire leaves. In addition, the bracts of *P. menispermifolia* are much narrower and glandular-denticulate, and in *P. nephrodes* the petiolar glands are much more slender. The specimens examined are all in fruit, with badly withered floral parts, so that an accurate description of the coronal structure is not possible. Apparently the outermost corona filaments are much shorter than in *P. menispermifolia* or *P. nephrodes*.

289. *Passiflora nephrodes* Mast. Bull. Torrey Club 17: 282. 1890.

Plant densely hirsute throughout; stem subangular; stipules subreniform, 1.5 to 2 cm. long, 0.8 to 1 cm. wide, aristate, coarsely serrate-dentate; petioles 1 to 2 cm. long, bearing near the middle 2 or 3 stipitate glands 2 to 3 mm. long; leaves 6 to 13 cm. long, 5 to 9 cm. wide, 3-lobed (middle lobe ovate or ovate-lanceolate, 3 to 5 cm. wide, one-half to two-thirds the length of the blade, acute or subobtuse, the lateral lobes deltoid-ovate), subcordate, denticulate; peduncles 4 to 6 cm. long, in fruit much longer; bracts borne about 3 mm. below the base of the flower, ovate-lanceolate, 1 to 2 cm. long, 0.7 to 1 cm. wide, serrate; flowers 6 to 8 cm. wide; sepals oblong, 3 to 3.5 cm. long, 1 to 1.2 cm. wide, obtuse, dorsally awned just below apex; petals linear-oblong, slightly shorter and narrower than the sepals; corona filaments filiform, in several series, the outermost 2.5 to 3 cm. long, radiate, proximally purple, distally white, those of the succeeding series 3 to 6 mm. long, erect; operculum membranous at base, filamentose above, the filaments 5 to 8 mm. long; limen membranous, 3 mm. high, closely surrounding the base of the gynophore; ovary ovoid, hirsute; fruit ovoid, about 4 cm. long and 2 cm. in diameter, narrowed at base; seeds obovate, about 6 mm. long and 3 mm. wide, reticulate.

TYPE LOCALITY: Unduavi, Bolivia.

DISTRIBUTION: Eastern Peru to western Bolivia and Amazonian Brazil, up to 2,500 meters altitude.

PERU: Junín: Yapas, Pichis Trail, Killip & Smith 25447 (F, N, Y).—Cuzco: Lares Valley, Weberbauer 7920 (N).

BOLIVIA: Beni: Rurrenabaque, Rusby (*Mulford Biol. Expl.* 1576; Y).—La Paz: Unduavi, 2,500 meters, Rusby 494 (Y, type). Espíritu Santo, Bang 1251, in part (B, Bo, Ph, V, Y).

BRAZIL: Amazonas: Juruá, Ule 5830 (B).

The densely hirsute ovary distinguishes this species from both *P. menispermifolia* and *P. hastifolia*. The form of the leaves is intermediate between these two species.

290. *Passiflora hastifolia* Killip, Journ. Wash. Acad. Sci. 14: 113. 1924.

Plant densely hirsute throughout (except flowers) with stiff, white hairs; stem terete; stipules subreniform, 1.2 to 1.5 cm. long, 5 to 6 mm. wide, aristate, coarsely dentate at base, subentire above; petioles up to 3 cm. long, bearing 2 to 4 stipitate glands about 1.5 mm. long; leaves 4 to 7 cm. long, 6 to 9 cm. wide, hastate (lobes acute, the middle lobe ovate-lanceolate, 2 to 3 times as long as the lateral lobes, 2 to 3.5 cm. wide, the lateral lobes divergent), subcordate, 5-nerved, minutely denticulate or subentire, membranous; peduncles not seen; bracts ovate, 1 to 1.3 cm. long, about 7 mm. wide, acute, glandular-serrate; flowers about 5 cm. wide; sepals 1.5 to 2 cm. long, 6 to 7 mm. wide, corniculate at apex, dark green without, white at margin, white within; petals oblong-lanceolate, 1 to 1.5 cm. long, 4 to 5 mm. wide, obtuse, white; corona filaments filiform, in several series, the outermost 1 to 1.2 cm. long, pink at apex, white at middle, purple at base, the succeeding 4 or 5 series composed of numerous purple filaments 3 to 5 mm. long; operculum inflexed at base, membranous below, filamentose above, the filaments erect; limen membranous, closely surrounding base of gynophore; ovary ovoid, glabrous, pruinose.

TYPE LOCALITY: Milluguaya, North Yungas, Bolivia.

DISTRIBUTION: Western Bolivia.

BOLIVIA: La Paz: Milluguaya, North Yungas, 1,300 meters, *Buchtien 4356* (N, type). Yungas, *Weddell 4251* (P).

The indument which covers this plant nearly throughout is very similar to that of *P. nephrodes*. The leaves, however, are truly hastate, the inner corona filaments are much shorter, and the ovary is glabrous.

Subgenus XIX. DYSOSMIA

291. *Passiflora clathrata* Mast. in Mart. Fl. Bras. 13, pt. 1: 580. *pl. 110, f. 1.* 1872.

Erect, subligneous herb, up to 35 cm. high, densely hirsute throughout; stem terete; stipules semi-annular about stem, deeply laciniate, the segments gland-tipped; petioles 3 to 8 mm. long, glandless; leaves ovate or oblong-ovate, 3 to 6 cm. long, 1.5 to 3.5 cm. wide, unlobed or obsoletely lobed toward apex, rounded or obtuse

at apex, rounded at base, denticulate or subentire, 3-nerved, membranous, appressed-hirsute with golden brown hairs on both surfaces; peduncles solitary, up to 1 cm. long, slender; bracts 1.5 to 2 cm. long, 0.5 to 1 cm. wide, deeply bipinnatisect (ultimate segments gland-tipped), hirsute; flowers about 5 cm. wide; calyx tube campanulate; sepals lance-oblong, about 1.5 cm. long, 6 to 8 mm. wide, dorsally aristate, greenish without, greenish white within; petals linear-oblong, subequal to sepals, greenish white; corona filaments in 4 series, those of 2 the outer radiate, filiform, 1 to 1.3 cm. long, purple at apex and base, white at middle, those of the inner series capillary, about 1.5 mm. long, white proximally, purplish distally; operculum membranous, about 1 mm. high, denticulate, white; limen a low, annular ridge; ovary subglobose, densely white-villous; fruit ovoid, yellow.

TYPE LOCALITY: Central Brazil.

ILLUSTRATION: Mart. Fl. Bras. 13, pt. 1: *pl. 110, f. 1*.

DISTRIBUTION: Central Brazil, states of Goyaz, Minas Geraes, and Matto Grosso.

BRAZIL: *Sello 2335* (B, type).—Goyaz: Douro, *Gardner 3192* (K).—Matto Grosso: Cuyabá, *Malme* in 1902 (S).—Minas Geraes: Lagôa Santa, *Warming 1172* (Cop), in 1864 (Cop, N); *St. Hilaire 465* (P), *2157* (P); *Claussen 377* (P, V); *Glaziov* (P). Caldas, *Mosén 528* (S); *Widgren 578* (S). Caldas, *Martius 361a* (Brux), *623* (Brux). Bello Horizonte, *Jard. Bot. Bello Horizonte 17907* (N).

This is a well marked species, at once recognized in *Dysosmia* by its erect habit and entire leaves.

292. *Passiflora Urbaniana* Killip, Journ. Wash. Acad. Sci. 17: 426. 1927.

Plant scandent, with slender tendrils; stem terete, softly ferruginous-villosulous or tomentulous toward end; stipules minute, semi-annular, barely 0.5 mm. long; petioles 5 to 10 mm. long, glandless, densely ferruginous-tomentose; leaves oblong or lance-oblong, 4.5 to 9 cm. long, 2 to 4 cm. wide, obtuse or rounded at apex, cordulate, entire or remotely undulate-crenulate, 3 (or 5)-nerved (nerves impressed above, the secondary nerves 5 to 7 on each side), coriaceous or subcoriaceous, minutely hispidulous above, densely and softly ferruginous-tomentose beneath; peduncles 5 to 8 cm. long, pilosulous; bracts 2 to 3.5 cm. long, 1 to 1.5 cm. wide, viscous, deeply bipinnatisect; flowers about 5 cm. wide; calyx tube short-campanulate; sepals oblong, about 2 cm. long and 6 mm. wide, obtuse, greenish and

hirsutulous without, 3-nerved, the middle nerve carinate toward apex and terminating in a short horn; petals linear, slightly shorter than the sepals, lavender; corona filaments in 5 series, those of the 2 outer filiform, about 1.3 cm. long, violet at base, radiate, those of the inner series almost capillary, about 2 mm. long, erect; operculum membranous, erect, about 1 mm. high, minutely denticulate; limen similar to the operculum, about 2 mm. high; ovary subglobose, densely white-villous-tomentose; fruit globose, about 3.5 cm. in diameter, villous; seeds oblong-cuneate, about 4 mm. long and 3 mm. wide, shallowly tridentate, finely reticulate.

TYPE LOCALITY: Santiago de Las Vegas, Province of Habana, Cuba, where cultivated.

DISTRIBUTION: British Honduras; cultivated in Cuba.

BRITISH HONDURAS: Churchyard Pine Ridge, Sibun River, *Gentle 1826* (Mich).

CUBA: Habana: Santiago de Las Vegas, cultivated, *Baker 2588* (B, Cal, HV, N, type, P, Ph, Y); *Luna 409* (HS).

This species was based upon specimens of a plant grown in Cuba from seeds said to have been brought from British Honduras. It was not collected in its native country, however, until 1936. Its relationship is with the Brazilian *P. clathrata*.

293. *Passiflora lepidota* Mast. in Mart. Fl. Bras. 13, pt. 1: 581. 1872.

Plant glabrous throughout; stem slender, terete, wiry; stipules soon deciduous; petioles up to 1 cm. long, glandless; leaves angulately 3-lobed or subentire and nearly reniform, 1.5 to 3 cm. along mid-nerve, 3 to 5 cm. at greatest width (lobes orbicular or orbicular-ovate, rounded at apex), deeply cordate, 3-5-nerved, membranous, green and lustrous above, purplish and covered with numerous yellowish, suborbicular, peltate scales beneath; peduncles solitary, 2 to 3 cm. long; bracts 1 to 1.8 cm. long, 3-5-cleft on each side to below middle, bearing at margin and at tips of segments scales similar to those on leaves; flowers 2 to 2.5 cm. wide; calyx tube campanulate; sepals lance-oblong, about 1.5 cm. long, 0.4 cm. wide; petals similar to the sepals; corona filaments in 4 series, those of the 2 outer filiform, about 8 mm. long, radiate, those of the 2 inner series capillary, 1 mm. long; operculum membranous, denticulate, recurved at margin; ovary subglobose, glabrous; fruit globose, about 2.5 cm. in diameter, the exocarp coriaceous, orange, reddish-maculate; seeds narrowly

oblong, about 5.5 mm. long, 2 mm. wide, punctate with numerous small depressions.

TYPE LOCALITY: Southern Brazil.

DISTRIBUTION: Southern Brazil.

BRAZIL: "Southern Brazil," *Sello* (B, type).—São Paulo: *Brade* 7392 (B).—Paraná: Vista Velha, *Jönsson* 1071a (S); *Dusén* 7263 (S). Morungava, *Dusén* 16569 (S). Turma, *Dusén* in 1909 (S). Capão Bonito, *Dusén* 16906 (S).

This is another one of the easily recognized species of *Dysosmia*. The leaves are unusually small for the subgenus and are densely covered beneath with round, peltate, yellowish scales, which Masters likens to those of *Rhododendron ferrugineum*. The stipules are narrowly triangular.

294. *Passiflora Palmeri* Rose, Contr. U. S. Nat. Herb. 1: 131. pl. 14. 1892.

Low, flat-topped, viscous shrub, 50 cm. high, the crown 80 to 120 cm. wide, with short branches lopping over the skeleton of the plant; branches densely pilose with white or yellowish, unequal hairs; stipules semi-annular about the stem, deeply cleft into filiform, gland-tipped divisions; petioles 1 to 1.5 cm. long, pilose, bearing numerous coarse, gland-tipped hairs; leaves 1 to 3 cm. long, 2 to 4 cm. wide, 3-lobed (lobes orbicular, rounded), cordate, 3-5-nerved, serrulate and densely glandular-ciliate, densely brown-hirsute-tomentose, glutinous on both surfaces; peduncles 4 to 5 cm. long; bracts 2 to 4 cm. long, 8 to 12 mm. wide, pilose, deeply bipinnatisect into capillary, gland-tipped segments; flowers 5 to 7 cm. wide; sepals linear, 3.5 cm. long, 4 mm. wide, 3-nerved, pilose and greenish without, glabrous and white within, slender-awned dorsally just below apex; petals linear, 2 to 3 cm. long, 3 mm. wide, white, 1-nerved; corona filaments in several series, those of the 2 outer series erect, capillary, barely 2.5 mm. long, light blue to deep purple, the tips paler, the succeeding series consisting of minute threads about 0.5 mm. long; operculum membranous, nonplicate, minutely denticulate; limen erect, membranaceous, about 3 mm. high, the margin recurved, minutely crenulate; gynophore slender, 2 cm. long, glabrous, violet at base, white above; ovary subglobose, sericeo-villous; fruit globose, 2.5 to 3 cm. in diameter, densely pilose; seeds oblong or narrowly cuneate, 6 mm. long, 2 mm. wide, 3-toothed at apex, reticulate with about 30 meshes to each face.

TYPE LOCALITY: Carmen Island, Lower California.

ILLUSTRATION: Contr. U. S. Nat. Herb. 1: *pl. 14*.

DISTRIBUTION: Lower California.

MEXICO: Lower California: Carmen Island, *Palmer 868* (Bo, Cal, F, G, K, N, type, S); *Rose 16615* (N); *I. M. Johnston 3823* (Cal, G, K, N, Y). Concepción Bay, *Rose 16691* (N). Palm Canyon, Angel de La Guardia Island, *I. M. Johnston 3397* (Cal, G, K, N), *3406* (Cal, G, N, Y). San Estebán Island, *I. M. Johnston 3167* (Cal, G, K, N). South San Lorenzo Island, *I. M. Johnston 3536* (Cal, G, K, N). Las Animas Bay, *I. M. Johnston 3500* (A, Cal, G, K, N, Y). San Marcos Island, *I. M. Johnston 3640* (Cal, G, N). Mulegé, *I. M. Johnston 3659* (Cal, N). San Nicolás Bay, *I. M. Johnston 3721* (Cal, G, K, N). Coronado Island, *I. M. Johnston 3759* (Cal, N). Puerto Escondido, *I. M. Johnston 3848* (Cal). Agua Verde Bay, *I. M. Johnston 3882* (Cal, G, K, N); *Collins, Kearney & Kempton 234* (N), *234A* (N). Comondú, *Brandegge* in 1889 (N). San José del Cabo, *Bailey 225* (N).

This is at once distinguishable from the other representatives of *Dysosmia* by its flowers, which are two or three times as large as those of allied species. The sepals and petals are long and relatively narrow, the outer filaments of the corona are small and inconspicuous, and the gynophore is much elongated.

LOCAL NAME: "Sandillita."

294a. *Passiflora Palmeri* var. *sublanceolata* Killip, Carnegie Inst. Wash. Publ. 461: 322. 1936.

Leaves lanceolate in general outline, 3 to 5 cm. long, 2 to 3.5 cm. wide, the basal lobes much reduced; bracts 2 to 2.5 cm. long, 8 to 10 mm. wide; flowers "bright scarlet" or "rose-red."

TYPE LOCALITY: Between Uaxactún and San Clemente, Department of Petén, Guatemala.

DISTRIBUTION: Southeastern Mexico and northeastern part of Guatemala.

MEXICO: Campeche: Tuxpeña, *Lundell 1352* (Mich).—Yucatán: Chichankanab, *Gaumer 23671* (F, Gen, N, Y).

GUATEMALA: Petén: Between Uaxactún and San Clemente, *Bartlett 12788* (Mich, N, type).

295. *Passiflora fruticosa* Killip, Journ. Wash. Acad. Sci. 12: 256. 1922.

Low shrub with an erect caudex, 20 to 40 cm. high, and a few short, sprawling branches; branches and tendrils densely white-

lanate, the tendrils often wanting; stipules semi-annular about stem, deeply cleft into filiform, gland-tipped divisions; petioles 5 to 15 mm. long, densely lanate, destitute of true petiolar glands but bearing numerous gland-tipped hairs; leaves orbicular in outline, usually 0.5 to 2 cm. long and wide, rarely up to 3.5 cm., 3-lobed (lobes subequal, rounded), 3-5-nerved, densely glandular-ciliate, lanate with soft, white to dark brown wool, glutinous; peduncles 1 to 2.5 cm. long; bracts up to 4 cm. long, 2.5 cm. wide, bipinnatisect, hirsute, copiously covered with gland-tipped hairs; flowers 2.5 to 3 cm. wide; sepals ovate-lanceolate, 1 to 1.3 cm. long, 6 mm. wide at base, densely velvety-pubescent without, glabrous within; petals 5 to 7 mm. long, 4 mm. wide, obovate, glabrous; corona filaments in several series, those of the outer 2 about 1 cm. long, filiform, the succeeding series consisting of minute, capillary threads 1.5 to 2 mm. long; operculum membranous, the apex minutely denticulate; limen cupuliform, 1.5 mm. high, entire, recurved at margin; ovary subglobose, sericeous; fruit subglobose, 2.5 cm. in diameter, densely sericeous; seeds oblong, minutely 3-toothed at apex, truncate at base, flattened, 5 mm. long, 2.5 mm. wide, reticulate with about 25 meshes to each face.

TYPE LOCALITY: Santa Margarita Island, Lower California. (The type locality originally given for this was Santa María Bay, this name having been entered on the label.)

DISTRIBUTION: Lower California.

MEXICO: Lower California: Santa Margarita Island, *Rose 16285* (N, type, Y). Magdalena Island, *Brandeggee* in 1889 (Cal, F, G, Minn, N, Po); *Orcutt 70* (N). Magdalena Bay, *Mason 1919* (N); *Solis* in 1925 (N). Espíritu Santo, *Brandeggee* (Cal, G); *Bryant* (Cal); *I. M. Johnston 3978* (Cal, G). San Francisco Island, *I. M. Johnston 3951* (Cal, G, N); *Collins, Kearney & Kempton 188* (N). La Paz, *Nuñez* in 1919 (N). Comondú, *Brandeggee* in 1889 (N). Aguaje de Santa Ana, *Nelson & Goldman 7194* (N).

This plant has the dense indument of *P. Palmeri* and *P. arida*. Like *P. Palmeri* it is a low shrub with sprawling branches, and is very viscous. The flowers are smaller, with a shorter gynophore and proportionately longer outer corona filaments. The leaves are smaller than in *P. Palmeri*, and the indument of the stem is densely matted, almost lanate, not of soft, straight hairs. It is distinguished from *P. arida* by its shrubby habit, extreme viscosity, and usually small leaves with suborbicular lobes.

Dr. I. M. Johnston has supplied the writer with valuable notes, made from field observations, on the species of this subgenus in

Lower California. In regard to *P. fruticosa* he says, "It has a very loose, shrubby upright caudex, 2-4 dm. high and a few rather short, sprawling stems. It differs from *Palmeri* in being smaller, more open, and more spreading. Like *Palmeri* it has very oily herbage, which stains the collecting sheets, but it differs in the amount of glands."

296. *Passiflora chrysophylla* Chod. Bull. Herb. Boiss. 7, App. 1: 75. 1899.

Passiflora australis Chod. Bull. Herb. Boiss. 7, App. 1. 75, 1899.

Passiflora chrysophylla var. *hastata* Chod. Bull. Herb. Boiss. II. 2: 745. 1902.

(?) *Passiflora chrysophylla* var. *sericea* Chod. Bull. Herb. Boiss. II. 2: 745. 1902.

(?) *Passiflora chrysophylla* f. *solanacea* Chod. & Hassl. Bull. Herb. Boiss. II. 4: 61. 1903.

Passiflora chrysophylla var. *concepcionis* Chod. & Hassl. Bull. Herb. Boiss. II. 4: 61. 1903.

(?) *Passiflora chrysophylla* f. *apaensis* Chod. & Hassl. Bull. Herb. Boiss. II. 4: 61. 1903.

Plant scandent or occasionally suberect, the lower portion woody; stem terete, sulcate, densely flavo-tomentose; tendrils present, often very slender and reduced; stipules minute, semi-annular about and closely appressed to the stem, entire, about 2 mm. long and 0.5 mm. wide; petioles up to 4 cm. long, yellowish-tomentose; leaves 4 to 10 cm. long, 5 to 10 cm. wide, hastate or subsagittate (lobes obtuse, the middle lobe elliptic or oblong-lanceolate, 1 to 2 cm. wide, about twice as long as the lateral lobes), repand or subentire, rarely lobulate, yellowish-lanuginous above, yellowish- or grayish-tomentose beneath; peduncles solitary, up to 3 cm. long; bracts once pinnatifid, the uncut portion linear, up to 2 cm. long, about 1 mm. wide, bearing small, yellowish glands along margin and at tips of the segments, the segments few, divaricate, up to 4 mm. long; flowers up to 6 cm. wide; sepals linear-lanceolate, 2 to 2.5 cm. long, 5 to 8 mm. wide, obtuse, aristate dorsally just below apex, appressed-hirsute and resinous-glandular without; petals linear-lanceolate, 1 to 1.2 cm. long, 3 to 5 mm. wide, white; corona filaments filiform, rose, bluish, or purplish, in several series, the outer about 1 cm. long, the inner barely 2 mm. long; operculum membranous, erect, denticulate; limen saucer-shaped; ovary subglobose, pilose; styles pilose.

TYPE LOCALITY: Cordillera de Altos, Paraguay.

DISTRIBUTION: Paraguay, Uruguay, and northern Argentina.

PARAGUAY: Cordillera de Altos, Hassler 139 (Bo, type); Fiebrig 403 (Gen). Concepción, Hassler 7418* (BM, type collection of *P. chrysophylla* f. *solanacea*), 7547 (BM, Bo, type of *P. chrysophylla* var. *concepcionis*, Gen, K); Kuntze in 1892* (F). Río Y-acá, Hassler 6878* (BM). Itacurubi, Hassler 39 (Bo, type of *P. australis*). Río Yhú, Hassler 9562* (BM, Gen, K, P, V). Río Paraguay, Hassler 6360* (Gen). Río Apa, Hassler 4825 (B), 7804 (BM, type collection of *P. chrysophylla* f. *apaensis*); Fiebrig 4825 (BM, Gen), 5286 (G). Gran Chaco, Hassler 2360 (B, BM, Bo, Gen, K, P, V). Tapiraguay, Hassler 4329 (BM, Bo, Gen, K, P, V). Río Capibary, Hassler 5934 (B, BM, Bo, type of *P. chrysophylla* var. *hastata*, G, Gen, K, V). Asunción, Gibert 103 (K, type of *P. chrysophylla* var. *sericea*); Balansa 2200 (Bo, Gen); Morong 223 (Y). Recoleta, Lindman A2183* (S). Bahía de Conchas, Anisits 2287 (S). Campo Grande, Archer 4948 (N).

URUGUAY: Montevideo, Fruchard 1031* (P).

ARGENTINA: Formosa: Las Lomitas, Parodi 8400 (G).—Chaco: Fontana, Meyer 161 (N).

The specimens previously cited as being definitely referable to *P. chrysophylla* have an assemblage of characters that set them apart from *P. foetida*. The stem is densely tomentose with yellowish hairs; stipules are not cleft; bracts have a main rachis from which arise filiform segments which are not divided; along this rachis and at the tip of the segments are resinous glands, these being borne also on the outside of the sepals. The structure of the flower, however, does not differ from that of *P. foetida*.

In dealing with this species, as well as with the varieties of *P. foetida* in southern South America, I have been handicapped by the fact that the flora of this region is poorly represented in North American herbaria, and that I have not had all together at one time for careful study the far more abundant material of this group preserved in European herbaria. In the course of visits made to Europe in 1925, 1932, and 1935, I have been able to find solutions to many of the problems in Passifloraceae, but *P. chrysophylla* and the varieties of *P. foetida* in southern Brazil, Paraguay, Uruguay, and Argentina are still to be worked out to my satisfaction.

Most of the work on the Passifloraceae of these southern countries has been that of Professor Chodat in connection with his report on the Hassler Paraguayan collection. Chodat had an abundance of material for study, and proposed varieties and forms of *P. chrysophylla* and *P. foetida* with much the same freedom that I have in

dealing with *Dysosmia* in Mexico and Central America, a region richly represented in the herbaria of the United States. Although I have seen most of Chodat's types, my notes upon them now seem all too inadequate, and I am reluctant definitely to reduce his numerous varieties and forms. There seems, moreover, an element of inconsistency in refusing recognition to another's variants and at the same time proposing a multitude of varieties from other regions.

In the foregoing list of specimens examined I have included all those which from my notes I believe represent *P. chrysophylla*. Those which on re-examination may prove to belong to a variety of it or to some other species of *Dysosmia* are accompanied by an asterisk.

297. *Passiflora arida* (Mast. & Rose) Killip, Journ. Wash. Acad. Sci. 12: 256. 1922.

Passiflora foetida var. *arida* Mast. & Rose, Contr. U. S. Nat. Herb. 5: 182. 1899.

Plant not viscous; stem profusely branched at base, densely lanate throughout with a soft, white indument; stipules semi-annular about stem, deeply cleft into subulate divisions; petioles 5 to 8 mm. long (or the lowermost occasionally up to 3.5 cm.), glandless; leaves 3 to 4 cm. long, 4 to 5 cm. wide, 3-lobed (lobes orbicular or oblong, nearly equal, rounded or acutish at apex), cordate at base, 3-5-nerved (nerves and veins prominent beneath), densely lanate on both surfaces with a matted, grayish, golden brown, or reddish brown indument; peduncles 1.5 to 3 cm. long; bracts lanate with reddish brown or whitish hairs, bipinnatifid into linear-subulate segments, destitute of glands; flowers 2.5 to 3.5 cm. wide; sepals ovate-lanceolate, about 1.5 cm. long, 7 mm. wide, obtuse, aristate dorsally just below apex, green and hirsute without, white and glabrous within; petals oblong, 1 cm. long, 4 mm. wide, white; corona filaments in several series, the outer 2 series with narrowly linear filaments averaging 8 mm. long, violet-blue, those of the inner 3 to 5 series capillary, barely 1 mm. long; operculum 1 mm. high, minutely denticulate; limen cup-shaped, 1.5 mm. high, recurved at margin, entire; gynophore white, marked with oblong, purple or magenta spots; ovary subglobose, densely sericeous; fruit subglobose, 3 cm. in diameter, pubescent; seeds flattened, 3 to 5 mm. long, 2 to 3 mm. wide, oblong, 3-toothed at the apex, truncate at the base, reticulate, the meshes 0.5 mm. in diameter, about 25 to each face.

TYPE LOCALITY: Guaymas, Sonora, Mexico.

DISTRIBUTION: Lower California and northwestern Mexico.

MEXICO: Lower California: Comondú, *Bryant* (N). La Paz, *I. M. Johnston* 3069 (Cal, G, K, N). Magdalena Bay, *Lung* (Cal). San Estebán Island, *I. M. Johnston* 3200 (Cal, G, N), 4402 (Cal). Tortuga Island, *I. M. Johnston* 3598 (Cal, G, N), 4200 (Cal, N). San Francisquito Bay, *I. M. Johnston* 3544 (Cal, G, K, N, Y). Guadalupe Point, Concepción Bay, *I. M. Johnston* 4158 (Cal, G, N).—Sonora: Guaymas, *Rose* 1206 (G, N, type); *Rose, Standley & Russell* 15041 (N); *Palmer* 91 (BM, G, N, Y). Hermosillo, *Maltby* 206 (N). San Pedro Bay, *I. M. Johnston* 4298 (Cal, G, N). Verrugo Pass, *MacDougal & Shreve* 1 (N). "Northwestern Sonora," *Pringle* 52 (G).—Sinaloa: Mazatlán, *Rose, Standley & Russell* 13688 (N); *Ortega* 7230 (N).

This species is apparently confined to the arid regions of Lower California and the northwestern part of Mexico. It is a true vine and completely lacks the "oiliness" which characterizes *P. fruticosa* and *P. Palmeri*.

LOCAL NAME: "Corona de la reina."

297a. *Passiflora arida* var. *cerralbensis* Killip, var. nov.

Caules, petioli, pedunculi pilis albidis dense et molliter villosuli; folia pilis lucidis aureo-brunnescentibus lanuginoso-hirsuta; bracteae pilosae, segmentis filiformibus.

Stem, petioles, and peduncles densely and softly villosulous with short, white hairs, not lanate; leaves lanuginous-hirsute with lustrous, golden brown hairs, slightly paler beneath; bracts pilose, the segments filiform.

Type in the United States National Herbarium, No. 1,209,271, collected at Ruffo's Ranch, Cerralbo Island, Gulf of California, Mexico, June 7, 1921, by I. M. Johnston (No. 4043). Duplicates at Cal, G, and K.

DISTRIBUTION: Lower California.

MEXICO: Lower California: Between San Pedro and La Paz, *Nelson & Goldman* 7480 (N). Between La Paz and Ventana, *Collins, Kearney & Kempton* 92 (N).

This is distinguished from typical *P. arida* by the indument and the more slender segments of the bracts.

297b. *Passiflora arida* var. *pentaschista* Killip, var. nov.

Folia ad basin 5-secta, segmentis sinuato-lobatis.

Leaves 5-cleft to base, the divisions sinuate-lobed.

Type in the United States National Herbarium, No. 313,891, collected at San José del Cabo, Lower California, in 1897, by A. W. Anthony (No. 333). Duplicates at Cal and G.

DISTRIBUTION: Lower California.

MEXICO: Lower California: San José del Cabo, *Rose 16464* (N); *Brandegee 228* (Cal); *Grabendorfer* in 1899 (Cal).

The leaves of this variety differ greatly from those of typical *P. arida*, but otherwise no important differences are discernible.

298. *Passiflora pectinata* Griseb. Fl. Brit. W. I. 294. 1859.

Plant glabrous throughout; stem subangular, striate, rather stout; stipules deeply cleft into linear or subulate, gland-tipped segments; petioles 1 to 2 cm. long, often bearing a few stiff, gland-tipped hairs; leaves cordate-deltoid, 4 to 7 cm. long, 3 to 6 cm. wide, obscurely hastate or not lobed, acute or obtusish at apex, deeply cordate at base, repand-crenulate (often with minute glands in the sinuses of the crenations at the tips of the nerves), 5-nerved, coriaceous, often sublustrous; peduncles solitary, 2 to 3 cm. long; bracts 2 to 3 cm. long pectinate or once pinnatifid (segments gland-tipped, scarcely longer than width of rachis), rarely bipinnatifid, but the rachis at least 2 mm. wide; flowers 5 to 8 cm. wide, white; sepals linear or linear-lanceolate, 2.5 to 3.5 cm. long, 5 to 8 mm. wide at base, obtuse, corniculate just below apex, the horn up to 7 mm. long, subfoliaceous; petals linear, 2 to 3 cm. long, 4 to 6 mm. wide, obtuse, white; corona filaments in several series, those of the 2 outer narrowly ligulate, the outermost 1 to 1.5 cm. long, the second 6 to 8 mm. long, the succeeding 2 or 3 series consisting of filiform threads 2 to 3 mm. long; operculum membranous, barely 1 mm. high, denticulate; ovary ovoid, tapering at apex; fruit subglobose, 2 to 3 cm. in diameter, deep pink; seeds oblong, about 5 mm. long, 4 mm. wide, tridentate at apex, shallowly coarsely reticulate.

TYPE LOCALITY: Turk Island, Bahamas.

ILLUSTRATION: Britton, Fl. Bermuda, 252.

DISTRIBUTION: Bermuda, Bahamas, and northern Hispaniola.

BERMUDA: *Brown, Britton & Seaver 1134* (B, BM, F, N, Ph, Y); *Brown & Britton 873* (B, BM, F, N, Ph, Y), *899* (F, Ph, Y), *974* (F, Ph, Y).

BAHAMAS: *Hjalmarson* (K, type); *Brace 455* (K, Y), *4090* (N, Y), *4609* (F, N, Y); *Britton & Millspaugh 2825* (F, G, N, Y), *5665* (F, Y), *5926* (F, N, Y), *5988* (F, N, Y); *Millspaugh & Millspaugh 9033*

(F), 9033bis (F), 9318 (F); *Wilson* 7278 (F, K, Y), 7661 (F, K, Y), 7838 (F, K, Y); *Eggers* 2857 (B, F), 3802 (B, BM, Bo, Gen, K, N, P), 4013a (B); *Hitchcock* in 1890 (F); *Nash & Taylor* 3804 (F, Y); *Fairchild* 2569 (N).

HAITI: Tortue Island, *Leonard & Leonard* 15335 (N), 15336 (K, N), 15382 (N), 15398 (N); *Ekman* H4158 (N, S).

DOMINICAN REPUBLIC: *Schomburgk* 141 (B, BM, K).

This species is at once recognized by the shape of bracts. The flowers are larger than in *P. foetida*, the sepals being linear or linear-lanceolate, as in *P. Palmeri*.

299. ***Passiflora bahamensis*** Britton, Bull. N. Y. Bot. Gard. 5: 315. 1907.

Plant glabrous throughout; stem subterete, striate, slender, purplish; stipules cleft nearly to base into narrowly linear or filiform, gland-tipped segments; petioles 1 to 3 cm. long, usually bearing a few stiff, gland-tipped hairs; leaves panduriform, 4 to 6 cm. (or up to 17 cm.?) long, 2.5 to 4 cm. wide (or wider?), 3-lobed middle lobe much elongate, 1.5 to 2 cm. wide, abruptly acuminate, often slightly narrowed to base, the lateral lobes more or less dependent, round or slightly angular, 3-5-nerved, glandular-denticulate, coriaceous, bright green, sublustrous above; peduncles solitary, up to 4 cm. long; bracts 2 to 3 cm. long, 1 to 1.5 cm. wide, deeply 2-3-pinnatisect, the ultimate filiform segments gland-tipped; sepals lanceolate or ovate-lanceolate, about 1.5 cm. long, 1 cm. wide, obtuse, dorsally awned just below apex, the awn 2 to 2.5 mm. long; petals ovate-oblong, slightly shorter than sepals; corona filaments in 5 series, those of the 2 outer filiform, 8 to 10 mm. long, those of the 3 inner series capillary, 1 to 1.5 mm. long; operculum membranous, minutely denticulate; limen cup-shaped; ovary ovoid, glabrous; fruit globose, 1.5 to 2 cm. in diameter, "bright-red and shining when ripe"; seeds oblong, about 4 mm. long, 2 mm. wide, reticulate.

TYPE LOCALITY: New Providence, Bahamas.

DISTRIBUTION: Bahamas.

BAHAMAS: *Curtiss* 209 (F, G, Minn, N, Y); *Small & Carter* 8507 (Y), 8571 (Y), 8754 (F, N, Y); *Britton & Millspaugh* 2102 (F, Y), 5833 (F, Y); *Millspaugh* 2130 (F); *Britton & Brace* 392 (Y, type); *Brace* 223 (Y), 5022 (F, Y), 5191 (F, Y), 6861 (F, Y), 7101 (F, Y); *Wilson* 7189 (F, Y); *Britton* 55 (Y); *Coker* 70 (Y); *Eggers* 4442 (Cop); *Northrop* 391 (B, Bo, G, K); *Rothrock* 378 (Penn).

The shape of the leaves of this species is quite uniform, and very different from that of other representatives of *Dysosmia*. The bracts are of the *P. foetida*, not the *P. pectinata*, type.

300. *Passiflora vestita* Killip, sp. nov.

Herba scandens tota rufo-hirsuta; folia trilobata, lobis ovato-lanceolatis, acutis vel acuminatis, lateralibus suberectis, sinu cum lobo medio acuto vel subacuto, ad basin truncata vel cordata, dense glanduloso-ciliata; bractee 1-2-pinnatisectae, segmentis paucis, ultimis glanduliferis; fructus globosus, rufo-hirsutus; semina obcuneata, 8 mm. longa, 5 mm. lata, apice tridentata, margine laevia, medio 10-reticulata, brunnea, nitida.

Herbaceous vine, densely rufo-hirsute nearly throughout; stem subterete; stipules semi-annular about stem, lacinate-cleft to about 1 mm. from base into filiform, gland-tipped segments; petioles 6 to 15 cm. long, rufo-hirsute, bearing in addition numerous gland-tipped hairs about 3 mm. long; leaves 7 to 15 cm. along midnerve, 5 to 12 cm. along lateral nerves, 6 to 12 cm. wide, 3-lobed (lobes ovate-lanceolate, acute or acuminate, the lateral lobes suberect, the sinus between them and the middle lobe acute or subacute), truncate or cordate at base, densely glandular-ciliate at margin, membranous, dark green above, paler beneath; peduncles solitary, 4 to 5 cm. long, stout; bracts 4 to 5 cm. long, pinnatisect or obscurely twice pinnatisect, the segments relatively few, the ultimate segments filiform, gland-tipped; calyx tube and sepals densely grayish-hirsute without; fruit globose, about 4 cm. in diameter, deep yellow, rufo-hirsute; seeds obcuneate, about 8 mm. long, 5 mm. wide, tridentate at apex, reticulate at middle of each face with about 10 reticulations, smooth toward margin, dark brown, lustrous.

Type in United States National Herbarium, No. 1,356,534, collected in forest between Yurimaguas and Balsapuerto (lower Huallaga basin), Department of Loreto, Peru, altitude 135 to 150 meters, August 26, 1929, by E. P. Killip and A. C. Smith (No. 28126). Duplicates at F and Y.

DISTRIBUTION: Known only from type locality, northern Peru.

The material here described was past its prime when collected, the flowers being badly withered. It clearly represents a species of the subgenus *Dysosmia*, but it can not be referred to *P. foetida*, even taking that species in the widest sense possible, or to any other described species. The lateral leaf lobes are erect, nearly as long as the middle lobe, and the sinuses between the lobes are acute; the

bracts are not repeatedly cleft as in the case of most varieties of *P. foetida* or most other species of *Dysosmia*. The seeds are fully three times as large as in other representatives of the subgenus, being about the same size as those of *P. quadrangularis*.

301. *Passiflora foetida* L. Sp. Pl. 959. 1753.

Herbaceous vine, ill-odored, glabrous throughout, or with a variable indument; stipules semi-annular about the stem, deeply cleft into filiform, occasionally pinnatisect, gland-tipped divisions; petioles up to 6 cm. long, glandless; leaves usually cordate at base, membranous, 3-5-lobed, the degree of lobation and the shape of the lobes highly variable; peduncles solitary, up to 6 cm. long; bracts involucrate, 2-4-pinnatifid or -pinnatisect, rarely once pinnatifid, the segments filiform, gland-tipped; flowers 2 to 5 cm. wide, white, pink, lilac, or purplish; sepals ovate-oblong or ovate-lanceolate, awned dorsally just below apex; petals oblong, oblong-lanceolate, or oblong-spatulate, slightly shorter than the sepals; corona filaments in several series, those of the 2 outer series filiform, about 1 cm. long, the others capillary, 1 to 2 mm. long; operculum membranous, erect, denticulate; fruit globose or subglobose, yellow to red; seeds ovate-cuneiform, about 5 mm. long and 2.5 mm. wide, obscurely tridentate at apex, coarsely reticulate at the center of each face.

DISTRIBUTION: Throughout the American tropics, and frequently introduced into other tropical regions.

Attached to a specimen of *Passiflora foetida* in the herbarium of the Royal Botanic Gardens, Trinidad, is a letter to John Hart, Superintendent of the Gardens, from Masters, from which I venture to quote the following: "As to your passionflower, it is certainly a form of *P. foetida*, a tropical weed which seems to be never twice alike! I dare say it would be possible to make 20 species out of it one week—but next you could not define them and would have to make 20 more !!"

This letter was written in 1894, twenty-two years after the publication of Masters' monograph of the family. What he says about this complicated *P. foetida* group is as true today as it was in 1894, the much greater amount of herbarium material now available only serving, perhaps, to increase the difficulties.

As in the case of similar complex species, several courses are open to the monographer: (1) the variants may be treated as races of a single, highly polymorphic species, without any attempt being made to assign formal subdivisional names to them; (2) numerous, poorly

defined species may be separated, species which, it might have to be admitted, freely intergrade; (3) certain major characters may be selected upon which a few species may be recognized, these being subdivided into smaller units; (4) a single species may be maintained, with an elaborate scheme of subspecies, varieties, subvarieties, forms, and subforms; or (5) a single species may be recognized, with numerous varieties of unequal rank.

As a result of the examination of several thousand specimens of "*P. foetida*," I have decided to adopt the last course, with this exception: a few variants that have an assemblage of characters, though only vegetative ones, that make them stand out from the others I have recognized as full species; these are *P. Urbaniana*, *P. arida*, *P. fruticosa*, *P. chrysophylla*, and *P. bahamensis*. The other species of the subgenus *Dysosmia*, *P. lepidota*, *P. Palmeri*, *P. pectinata*, and *P. vestita*, differ from *P. foetida* in flowers or fruits.

In the present monograph I am recognizing 37 varieties, in addition to typical *P. foetida*. All but two of these have a limited geographical distribution. The variety *hispida* is widely distributed, but throughout its range exhibits little variation. The variety *gossypifolia* has an even wider distribution, and there is considerable variation in the specimens which I refer to it. Perhaps this should be subdivided. It merges into the typical form and into many of the varieties.

In the letter previously mentioned, Masters also writes, "I suspect they [plants of *P. foetida*] intercross freely; indeed, some of them have proved to be more fertile with someone else's pollen than with their own." Perhaps this is the explanation for much of the variation in *P. foetida*; but in the absence of direct experiments it is not possible to determine which of the variants are mere hybrids.

The preparation of this revision has covered a number of years, during which I have had varying concepts of *P. foetida*. I should greatly prefer, of course, to review all the specimens I have examined, in order to fit them into the present final treatment, but this is not possible. The result is one which all monographers experience; specimens once referred to one variety may on re-examination prove to represent another. In such cases I have noted this uncertainty in the text following.

In *Dysosmia* an individual plant, whether known from a single mounted specimen or from specimens in two or more herbaria, or from the living plant in the field, shows very little variation. The outline of the leaves, for example, is far more uniform than in such

species as *P. suberosa* and *P. biflora*. The indument, the cutting of the bracts, and the size and color of the flowers and fruit are remarkably constant.

The degree of correlation of the characters varies, of course, in the different varieties of *P. foetida*. In general, it may be said that varieties which are glabrous, or nearly so, throughout have bluish or pinkish flowers and large, red fruits, whereas the presence of a strong indument is correlated with white flowers and smaller, yellowish fruits. As the major subdivision, however, I have taken the presence or absence of hairs on the ovary. The varieties, on the whole, fall into four main groups, as follows:

(1) Plant often quite viscous; stem pilosulous or hirsute with white, grayish, or yellowish hairs; leaves lanuginous-hirsute; bracts deeply 2-3-pinnatisect, but the ultimate filiform segments not closely interwoven or matted; flowers white, of medium size; ovary densely pubescent; fruit relatively small, yellowish, pubescent, though sometimes the indument scant.

(2) Similar to No. 1, but the indument usually less dense, sometimes wanting, the ovary always glabrous.

(3) Similar to No. 1, but the segments of the bracts closely interwoven, the indument of the vegetative parts consisting of long, yellowish hairs, the ovary being glabrous.

(4) Plant usually glabrous, except for a few gland-tipped hairs on the stem, petioles, peduncles, and leaf margin; flowers blue, purplish, or pink, rather large; fruit more than 3 cm. in diameter, red or scarlet.

For convenience, I have prepared three keys to the varieties, based on the three major areas of distribution, i.e., southwestern United States, Mexico, and Central America; southeastern United States and the West Indies; and South America. The sequence in the text, however, indicates their probable relationship.

Passiflora foetida is reported to be used for head colds in British Honduras. The fruit is eaten in many countries. Local names applied to the typical form or to the varieties are: "Clavellín blanco," "injito colorado," "flor de granadita," "ké-pá" (Mexico); "granadilla colorada," "granadilla montés," "granadilla silvestre," "sandía de culebra" (El Salvador); "bombillo" (Costa Rica); "caguajasa," "canizo," "cuguazo," "granadilla cimarrona," "pasionaria hedionda," "pasionaria de la Candelaria" (Cuba); "love-in-a-mist" (Jamaica); "Mariégouya," "toque molle" (Haiti); "tagua-tagua" (Puerto Rico).

and Venezuela); "Marie goujeat" (Martinique and Guadeloupe); "running pop" (British West Indies); "bel appel," "koroona die la birgi," "kruisebloem," "maraaka," "markoesa," "sjonsjon," "so-soro" (Dutch West Indies); "markoesa," "sneekie markoesa" (Surinam); "fit weed," "simito" (British Guiana); "parchita de culebra," "parchita de montaña," "parchita de sabana" (Venezuela); "bejuco canastilla," "cinco-llagas" (Colombia); "bedoca," "purupuru" (Peru); "pedón" (Bolivia); "maracujá de cobra," "maracujá de lagartinho," "maracujá de cheiro," "maracujá de cobra" (Brazil).

Key to the varieties of P. foetida in the western United States, Mexico, and Central America

Ovary pubescent; fruit sparingly to densely pubescent.

Basal leaf lobes not lobed, suborbicular.

Leaves about as long as broad.

Peduncles not more than 5 cm. long; plant often very viscous.

b. *gossypifolia*.

Peduncles more than 5 cm. long, very slender.

c. *longipedunculata*.

Leaves much longer than broad. d. *acapulcensis*.

Basal leaf lobes bilobate.

Middle leaf lobe not narrowed at base; lobes undulate or subentire. f. *oaxacana*.

Middle leaf lobe conspicuously narrowed at base; lobes irregularly serrulate or lobate. g. *arizonica*.

Ovary glabrous.

Bracts tripinnatisect or quadripinnatisect, the segments closely interwoven.

Basal leaf lobes oblong, nearly equal to the middle lobe.

k. *hirsutissima*.

Basal leaf lobes much reduced, usually merely a tooth.

m. *isthmia*.

Bracts bipinnatisect or tripinnatisect, the segments straight or at least not closely interwoven.

Stem hispid-hirsute with hairs averaging more than 2 mm. long.

Under surface of leaves appressed-hirsute. q. *hastata*.

Under surface of leaves softly lanuginous, hirsute on the nerves and veins. r. *lanuginosa*.

Stem densely and softly villous or pilosulous with hairs averaging less than 2 mm. long, or glabrous.

Leaves pubescent on one or both surfaces.

Plant diffusely branched; leaves rarely more than 2.5 cm. long, hastate. s. *parvifolia*.

Plant few-branched; leaves more than 2.5 cm. long.

Stem very slender, minutely white-pilosulous; leaves very thin, glabrous above. t. *tepicana*.

Stem coarser; leaves thicker, pubescent above.

Stem softly villous or pilosulous. aa. *Maxoni*.

Stem glabrous or very sparingly pilose.

Leaves subhastate, the basal lobes more than half as long as the middle lobe, usually bilobate.

bb. *subpalmata*.

Leaves strictly hastate, the basal lobes less than half as long as the middle lobe, not lobed.

Under side of leaves densely and softly pilosulous; basal lobes broadly ovate or orbicular-ovate in general outline. cc. *mayarum*.

Under side of leaves hirsutulous; basal lobes oblong in general outline. dd. *salvadorensis*.

Leaves glabrous.

Leaves 5-lobed. ee. *hibiscifolia*.

Leaves 3-lobed or subentire.

Basal leaf lobes much longer than broad. ff. *ciliata*.

Basal leaf lobes slightly, if at all, longer than broad, or almost wanting.

Leaves definitely hastate. gg. *nicaraguensis*.

Leaves narrowly lanceolate or obscurely hastate.

hh. *subintegra*.

Key to the varieties of P. foetida in Florida and the West Indies

Ovary pubescent; fruit sparingly to densely pubescent, less than 2.5 cm. in diameter, yellowish.

Stem, petioles, and peduncles hirsute with spreading, yellowish or brownish hairs averaging more than 1.5 mm. long.

a. *P. foetida* (typical).

Stem, petioles, and peduncles softly pilosulous, the hairs averaging not more than 1.5 mm. long, usually much less.

Basal lobes of leaves not lobed, suborbicular; leaf lobes apiculate.
b. *gossypifolia*.

Basal lobes of leaves prevailing bilobate; leaf lobes rounded at apex. i. *santiagana*.

Ovary glabrous.

Plant densely hispid-hirsute throughout; segments of bracts closely interwoven; fruit not more than 2.5 cm. in diameter, yellowish. l. *hispida*.

Plant essentially glabrous throughout; segments of bracts straight, or at least not closely interwoven; fruit more than 2.5 cm. in diameter, red or scarlet.

Bracts at least 2.5 cm. long at anthesis, at length as long as the fruit.

Basal leaf lobes oblanceolate or oblong-lanceolate. cc. *ciliata*.

Basal leaf lobes suborbicular. jj. *riparia*.

Bracts less than 2.5 cm. long at anthesis, rarely as much as 3 cm. long at fruiting time.

Basal leaf lobes bilobate. kk. *quinqueloba*.

Basal leaf lobes not lobed. ll. *polyadena*.

Key to the varieties of P. foetida in South America

Ovary pubescent; fruit sparingly to densely pubescent.

Sinus between the middle lobe and the basal lobes of the leaves acute or subacute, the middle lobe irregularly, often deeply, lobed (Uruguay, Paraguay, and Argentina). h. *vitacea*.

Sinus between the middle lobe and the basal lobes of the leaves shallow, obtuse, the middle lobe not lobed.

Stem, petioles, and peduncles hirsute with spreading, rather stiff, yellowish or brownish hairs averaging more than 1.5 mm. long. a. *P. foetida* (typical).

Stem, petioles, and peduncles softly pilosulous, the hairs averaging not more than 1.5 mm. long, usually less.

Leaves evenly serrate, often 5-lobed (Paraguay, Uruguay, and Argentina). e. *nigelliflora*.

Leaves undulate, crenulate, or subentire, never 5-lobed.

Bracts twice or thrice pinnatisect, the segments much longer than the width of the main rachis. b. *gossypifolia*.

Bracts prevailingly once pinnatifid. Stem usually white-villosulous (northern coast).....j. *Moritziana*.

Ovary glabrous.

Bracts very large, tripinnatisect or quadripinnatisect, the segments closely interwoven.

Basal leaf lobes prominent; bracts glabrous.....l. *hispida*.

Basal leaf lobes usually reduced to a mere tooth; bracts densely pilose, at least when young.....m. *isthmia*.

Bracts smaller, bipinnatisect or tripinnatisect, the segments straight, or at least not closely interwoven.

Leaves glabrous (Venezuela).....ii. *orinocensis*.

Leaves pubescent.

Under surface of leaves conspicuously glandular-thickened at base of hairs (Brazil).

Segments of stipules pinnatisect; leaves lustrous, densely glandular-ciliate.....n. *muralis*.

Segments of stipules filiform; leaves not glandular-ciliate, or very sparingly so.....o. *strigosa*.

Under surface of leaves not glandular-thickened at base of hairs.

Stem densely hispid-hirsute with hairs averaging 2 mm. long (Brazil).....p. *fluminensis*.

Stem pilosulous, hirsutulous, or glabrous.

Leaves toothed.

Stem glabrous; basal lobes of leaves well developed (Colombia).....u. *sanctae-martae*.

Stem grayish-pilosulous; basal lobes of leaves reduced (eastern Brazil).....v. *Gardneri*.

Leaves entire, at most slightly undulate.

Bracts about 1 cm. long; stem glabrous (southeastern Brazil).....w. *Glaziovii*.

Bracts more than 1 cm. long; stem usually pubescent.

Styles long-pilose; leaves averaging not more than 4.5 cm. wide (Colombia).....x. *Eliasii*.

Styles glabrous; leaves averaging more than 4.5 cm. wide.

Leaves appressed-pilose (Amazonian Peru and Brazil).....y. *hirsuta*.

Leaves hirsute-tomentulous or hirsutulous (Galapagos Islands).....z. *galapagensis*.

301a. *Passiflora foetida* L. Sp. Pl. 959. 1753. (Typical.)

Passiflora foetida L. β Sp. Pl. 959. 1753.

Passiflora vesicaria L. Amoen. Acad. 5: 382. 1760.

(?) *Passiflora variegata* Mill. Gard. Dict. ed. 8. *Passiflora* No. 8. 1768.

Granadilla foetida Gaertn. f. Fruct. & Sem. 1: 289. pl. 60. 1790.

Passiflora hirsuta Lodd. Bot. Cab. 2: pl. 138. 1818. Not *P. hirsuta* L.

(?) *Passiflora foetida* var. *variegata* G. F. W. Mey. Prim. Fl. Esseq. 226. 1818, in part.

(?) *Passiflora polyaden* Vell. Fl. Flumin. 9: pl. 92. 1827.

Tripsilina fetida Raf. Fl. Tellur. 4: 103. 1838.

(?) *Passiflora hibiscifolia* var. *velutina* Fenzl in Jacq. Eclog. Pl. 2: 5. pl. 123. 1844.

Dysosmia foetida M. Roemer, Fam. Nat. Syn. 2: 149. 1846.

Dysosmia hircina Sweet ex M. Roemer, Fam. Nat. Syn. 2: 150. 1846, as synonym.

(?) *Dysosmia polyadena* M. Roemer, Fam. Nat. Syn. 2: 150. 1846.

Passiflora foetida var. *gossypifolia* f. *longifolia* Kuntze, Rev. Gen. Pl. 254. 1891.

Passiflora foetida var. *hirsuta* f. *longifolia* Kuntze, Rev. Gen. Pl. 254. 1891.

Plant slightly or strongly viscous; stem hirsute with spreading, yellowish or yellowish brown hairs averaging more than 1.5 mm. long; leaves hastate (lateral lobes often reduced; midnerve: lateral nerves, 2: 1 or 3: 2), appressed-hirsute or lanuginous-hirsute on both surfaces, densely or sparingly glandular-ciliate; bracts 2 to 3 cm. long at post-anthesis, bipinnatisect or tripinnatisect; ovary hirsute with white or brownish hairs; fruit 2 to 2.5 cm. in diameter, yellowish, sparingly, rarely densely, hirsute.

TYPE LOCALITY: Perhaps Lesser Antilles, the precise origin of the Linnean type uncertain.

ILLUSTRATIONS: Amoen. Acad. 1: pl. 10, f. 19; Pluk. Alm. pl. 104, f. 1; Herm. Parad. 173. pl. 173; Cav. Diss. 10: pl. 89; Bot. Reg. 4: pl. 321; Bot. Mag. 53: pl. 2619; Lodd. Bot. Cab. 2: pl. 138; (?) Jacq. Eclog. Pl. 2: pl. 123; Mutis, Icon. Pl. Ined. 26: pl. 11; (?) Vell. Fl. Flumin. 9: pl. 92.

DISTRIBUTION: Puerto Rico, Jamaica, and the Lesser Antilles, and widely distributed in South America.

JAMAICA: Kingston, *Crawford* 605 (Ph, Y); *Britton & Hollick* 1750 (Y). Hope Gardens, *Harris* 8612 (J, Y).

PUERTO RICO: *Britton* 6635 (Y); *Goll* 393 (N); *Heller & Heller* 978 (B, F, J, K, N, Y); *Hioram* in 1917 (Y); *J. R. Johnston* 225 (Y); *F. H. Sargent* 573 (N); *Stahl* 542 (B); *Sinten* 810 (B, K, N, V), 810b (B); *Stevens* 1789 (Y); *Stevenson* 90 (N), 225 (N).

VIRGIN ISLANDS (U. S.): St. Croix: *James* 2 (Y).

GUADELOUPE: *Duss* 3647 (B, Cop, F, N, Ph, Y); *Stehlé* 1924 (N).

CURACAO: *Herb. Plukenet* (BM, type of *P. foetida* β).

TRINIDAD and TOBAGO: *Alexander* 4722 (B); *Britton, Hazen & Mendelson* 672 (Y); *Britton & Britton* 2184 (N, Y); *Broadway* 3580 (B); *Eggers* 5513 (B, N, Y); *Kuntze* 904 (Y, type of *P. foetida* var. *hirsuta* f. *longifolia*); *Fendler* 375 (BM, K); *Trinidad Herb.* 643, 3580, 5399, 6423, 7455, 7996, 8322, 9343, 10391, 11107, 11450 (all T).

FRENCH GUIANA: *Le Blond* 28 (Gen); *Sagot* in 1859 (V); *Gabriel* in 1802 (Gen).

SURINAM: *Focke* 122 (Leid); *Splitgerber* 20 (Leid, V), 793 (Leid); *Tulleken* 102 (Leid), 141 (Leid); *Wulfschlägel* 216, in part (Brux).

BRITISH GUIANA: *Schomburgk* 558 (B), 632 (Bo, Gen, K, N, Ut, V); *Jenman* 4563 (BG, N, Y), 5072 (BG, N, Y), 5410 (BG, BM, Y); *Hitchcock* 16767 (G, N, Y); *Im Thurn* 4 (BM, K, N); *Archer* 2526 (N); *Parker* (K).

VENEZUELA: *Otto* 872 (B), 1057 (B).—Sucre: *Cristóbal Colón, Broadway* 244 (G, N, Y). Cumaná, *Humboldt & Bonpland* (B).—Miranda: Los Mostazos, *Allart* 224 (Gen, N, Y). Los Teques, *Pittier* 11607 (N). Antimano, *Pittier* 6027 (B, N). Ocumaré, *Pittier* 7819 (N).—Federal District: Caracas, *Pittier* 6163 (N), 6169 (B, N), 7141 (N, Y), 9548 (G, N, Y); *Bailey & Bailey* 227 (N); *Kuntze* 1395 (Y, type of *P. foetida* var. *gossypifolia* f. *longifolia*); *Vargas* 262 (Gen); *Gollmer* (B). Sabana Grande, *Pittier* 9468 (G, N).

COLOMBIA: Magdalena: Río Frio, *Walker* 1204 (N).—Meta: Cabuyaro, *García* 5142 (HNC).—Tolima: *Lehmann* 2219 (Bo, K).—Huila: Neiva, *Rusby & Pennell* 1095 (Y); *Karsten* (V).—Antioquia: Medellín, *Archer* 444 (N).—El Valle: *Dryander* 959 (N). Espinal, *Killip & Hazen* 11100 (G, N, Ph, Y). La Cumbre, *Pennell & Killip* 5988 (G, N, Y). Cali, *Lehmann* 3386 (Bo, K). Tuluá, *Holton* in 1853 (K, Y).—El Cauca: *Lehmann* 1712 (K).—Nariño: Amarales, *Triana* 2944 (BM, HNC).

ECUADOR: Guayas: Guayaquil, *Mille* 10 (N); *Sodi*ro (N); *Sinclair* (K); *Hinds* (K); *Barclay* 2457 (BM); *Ruiz & Pavón* (Ma). Durán, *Rose* 23598 (G, N, Y). Daule, *André* 4142 (K).

PERU: San Martín: Juan Guerra, *L. Williams* 6843 (N).

BOLIVIA: Sunchal, *Herzog* 2003 (B).—Beni: Reis, *White* (*Mulford Biol. Expl.* 1216; N, Y).—La Paz: Guanai, *Tate* 592 (Y). Yungas, *Bang* 646 (N, Ph, Y).—Santa Cruz: *Herzog* 1319 (B). Buena Vista, *Steinbach* 5225 (G, Gen).

BRAZIL: *Lund* (Cop, Gen); *Salzmann* 289 (Gen).—Pará: Santarem, *Spruce* (V).—Maranhão: *G. Don* 131 (Brux).—Ceará: Cedro, *Löfgren* 45 (S).—Pernambuco: Tapera, *Pickel* 2375 (N); *Gardner* 1024 (K).—Bahia: *Blanchet* in 1831 (Gen, Y). Bahia, *Blanchet* 16 (BM), 252 (V), 291 (BM, Gen), 608 (BM); *Glocker* 545 (BM, N, S); *Lhotsky* in 1831 (Gen).—Matto Grosso: Cuyabá, *Malme* 1186 (S). Palmeiras, *Lindman* A2409 (S).—Rio de Janeiro: Morro de Cavalão, *Glaziou* 10873 (B, K).

PARAGUAY: Asunción, *Morong* 577 (G, N, Y). Río Pilcomayo, *Morong* 935 (K, N, Ph, Y). Maracayí, *Hassler* 4791 (BM). Villa Rica, *Jørgensen* 3789 (N). Estancia Armonia, *Anisits* 1905 (S).

Passiflora foetida is represented in the Linnean Herbarium by a single sheet, which was in Linnaeus' hands in 1753. The stem is hirsute with long, spreading hairs; the lateral lobes of the leaves are much reduced (midnerve: lateral nerves, 2.5: 1); the bracts are subequal to the sepals and not closely interwoven; the ovary is pilose. The figure in the *Amoenitates*, the first reference cited by Linnaeus under *P. foetida* in the *Species Plantarum*, agrees well with the leaves of the Linnean specimen.

The second reference in the *Species Plantarum* is to Linnaeus' *Philosophia Botanica* (p. 260), and here we have an excellent diagnosis. Linnaeus, in discussing the ideal description of a species, gives descriptions of three plants, one to illustrate the error of being too brief and indefinite, another to illustrate the danger of making too detailed a diagnosis which would describe an individual plant rather than a species, and a third the ideal description. By chance, *Passiflora foetida* was the species selected by him for the ideal description, so that we have a rather more ample description of this than of other Linnean species. Omitting the features that are characteristic of *P. foetida* in its widest sense, major points in this description are: spreading, unequal hairs on the stem; leaves obsoletely 3-lobed, entire and obscurely ciliate at the margin, bearing stiff hairs on both

sides; petioles similarly pilose, with erect, subulate glands in the upper part; tendrils pilose; involucre pilose, ciliate with subulate glands; flowers pilose. The description applies well to the specimen in the Linnean Herbarium, and probably was derived from it.

Of the other references mentioned by Linnaeus, some apply to the typical plant, some to varieties, and others cannot be associated definitely. His var. β was based on Plukenet's description and figure of "*Passiflora vesicaria* . . ." (Alm. 382. *pl.* 104, *f.* 1). The original of this, preserved in the Plukenet Herbarium at the British Museum, is typical *P. foetida*, however. In proposing the variety *variegata*, Meyer cites a Willdenow reference (Sp. Pl. 3: 619. 1800, a transcript of var. β L.), and appends a description, which better applies to var. *hispida*.

The typical form appears to be most abundant along the north coast of South America, and is well matched among recent collections by a Trinidad specimen (*Trinidad Herb.* 10391) and two from British Guiana (*Schomburgk* 632 and *Archer* 2526). In the West Indies and western South America the typical form merges into the variety *gossypifolia*, and in southern South America into the variety *nigelliflora*.

301b. *Passiflora foetida* var. *gossypifolia* (Desv.) Mast. Trans.

Linn. Soc. 27: 631. 1871; in Mart. Fl. Bras. 13, pt. 1: 582. 1872.

Passiflora gossypifolia Desv. in Hamilt. Prodr. Fl. W. I. 48. 1825.

Dyosmia gossypifolia M. Roemer, Fam. Nat. Syn. 2: 149. 1846.

Plant villosulous or hirsutulous throughout, often viscous, the indument grayish, brownish, or yellowish brown, averaging not more than 1.5 mm. long; leaf blades averaging 5 cm. long and 5 cm. at greatest width (basal lobes usually semi-circular in outline, sometimes abruptly narrowed to an obtuse point), undulate or crenate-serrulate; bracts 2 to 3 cm. long, bipinnatisect or tripinnatisect, the ultimate filiform segments gland-tipped, straight or nearly so, not closely interwoven; ovary sparingly to densely pilosulous, the hairs persisting in fruit; fruit 2 to 2.5 cm. in diameter, yellow or greenish yellow, red-spotted.

TYPE LOCALITY: Dominican Republic.

ILLUSTRATIONS: Plum. Pl. Amer. *pl.* 86; Bot. Reg. 19: *pl.* 1634; Link & Otto, Icon. Pl. Rar. *pl.* 46; Cortés, Fl. Columb. ed. 2, opp. p. 112, as *P. clathrata*.

DISTRIBUTION: Texas, Mexico, Central America, West Indies, and South America.

TEXAS: *Palmer* 2110 (K); *Parry & Palmer* 392 (N, Y). Cameron County, *Chandler* 7000 (N, Y). Hidalgo County, *Clover* 191 (Mich). Bravo del Norte, *Schott* (F). Laredo, *Mackenzie* 12 (N); *Schott* in 1852 (F); *Sickles* 1249 (Penn). Corpus Christi, *Rose* 18084 (N). El Jardin, *Runyon* 445 (N). Olmito, *Rose & Russell* 24170 (N). Rio Grande City, *Nealley* 159 (F), 203 (Penn).

MEXICO: *Andrieux* 171 (Gen); *Hahn* 53 (P); *Coulter* 61 (G); *Barclay* 1108 (BM); *Sessé & Mociño* 4467 (Ma), 4469 (Ma), 4472 (Ma).—Sonora: *Rose, Standley & Russell* 12931 (N).—Chihuahua: *Palmer* 199 (G, K, N).—Coahuila: *Berlandier* 2154 (G, N).—Nuevo León: *Pringle* 2235 (F, G), 13468 (N); *Arsène* 6316 (N); *Hartweg* 17 (B, BM, Bo, Gen, K, P, V, Y); *Pennell* 16944 (Ph).—Tamaulipas: *Palmer* 193 (BM, Gen, N, Y), 487a (F, Gen, Mo, N, Y).—Sinaloa: *Ortega* 878 (K); *Brandegge* 9532 (Cal, G, N); *Montes & Salazar* 878 (N); *Ortega* 5909 (N).—Zacatecas: *Rose* 2443 (G, N).—Tepic: *Rose, Standley & Russell* 14276 (N, P); *Rose* 1466 (G, N); *Lamb* 529 (Bo, G, N, Y).—Jalisco: *Rose* 2894 (N); *Jones* 354 (N), 27462 (N).—Puebla: *Purpus* 2722a (F, G, Gen, N, Y); *Galeotti* 3669 (Brux, P).—Veracruz: *Liebmann* 4089 (Cop, N); *Bilimek* (BM, F, K); *Purpus* 6236 (G, N, Y); *Botteri* 996 (G).—Morelos: *Bilimek* 152 (Brux, Cop, F, N, Ph, Y); *Rose & Hough* 4382 (N); *Rose & Painter* 6558 (N); *Lyonnet* 679 (N).—Mexico: *Hinton* 3659 (N).—Michoacán: *Hinton* 5514 (N).—Colima: *Palmer* 281 (Cop, N).—Oaxaca: *Nelson* 928 (N); *L. C. Smith* 465 (G); *Conzatti* 152 (G), 2242 (F, N); *Conzatti & Gonzales* 18 (F, N); *Andrieux* 367 (Gen, V); *Deam* in 1898 (G); *Pringle* 7509 (F, N), 13763 (Cop, G, Gen, N, S); *Purpus* 6903 (BM, F, G, N, Y), 7145 (BM, N); *C. L. Smith* 246 (F, N, Y); *Mell* 2246 (N, Y).—Tabasco: *Rovirosa* 559 (N, Ph, Y).—Chiapas: *Goldman* 748 (N); *Purpus* 9258 (F, G, N, Y).—Yucatán: *Gaumer* 793 (F), 1964 (F), 23291 (F, G, Gen, N, Y), 23582 (F, Gen, N), 23639 (F, Gen, N); *Schott* 240 (BM); *Steere* 1437 (N), 1554 (N).

GUATEMALA: *Savage* 59 (P).—Petén: *Aguilar* 357 (N).—Izabal: *Standley* 23968 (N), 25125 (N).—Zacapa: *Kellerman* 7663 (F, Y).—Guatemala: *Tonduz* 760 (N); *Rodríguez* 2001 (P).—Escuintla: *J. D. Smith* 1986 (Gen, N).—Amatitlán: *J. D. Smith* 1948 (B, G, K, N, Y); *Kellerman* 4779 (N); *Rodríguez* 2259 (P).

BRITISH HONDURAS: *Gentle* 223 (N); *Schipp* 1154 (Gen, Mich).

HONDURAS: *Standley* 54480 (N), 56861 (N); *Wilson* 528 (N, Y); *Niederlein* 209 (B); *Peck* 922 (G); *Yuncker, Dawson & Youse* 5583 (N).

SALVADOR: Ahuachapán: *Standley* 19727 (N, Y).—Sonsonate: *Pittier* 1953 (N); *Calderón* 634 (N); *Standley* 21901 (N, Y), 23444 (N).—San Salvador: *Calderón* 198 (N); *Standley* 22476 (N, Y).—San Vicente: *Standley* 21633 (N, Y).—La Unión: *Standley* 20817 (N).

NICARAGUA: *Wright* (N); *Oersted* 4146 (N); *Friedrichsthal* 852 (V).

COSTA RICA: *Pittier* 332 (Brux), 1994 (N), 2922 (Brux, N); *Tonduz* (or *Pittier*?) 1672 (Brux), 6759 (Bo, Brux, N, V), 13512 (BM, N); *Standley* 49305 (N).

CUBA: *Wright* 2603 (BM, Bo, Gen, HA, N); *Ekman* 934 (B, S).—Pinar del Río: *Britton & Earle* 6540 (Y); *Van Hermann* 574 (HV); *Earle* 611 (F, Y), 2849 (B, HV).—Habana: *Van Hermann* 3138 (Y); *Boldo* (Ma); *Wilson & León* 7761 (HS, N); *Britton, Britton & Wilson* 15456 (N, Y); *Curtiss* 388 (B, BM, Gen, HV, K, N, P, Y).—Santa Clara: *León* 9487 (HS).—Camagüey: *Acuña* 3764 (HV), 8826 (HV).—Oriente: *Ekman* 1985 (S).

HAITI: *Jaeger* 276 (B, P); *Picarda* 1270 (B); *Wolff* 11 (B); *Buch* 192 (B); *Leonard & Leonard* 14957 (N); *Ekman* H2167 (B, N, S).

DOMINICAN REPUBLIC: *Poiteau* in 1802 (B, Gen, P, type); *Ritter* in 1873 (V); *Abbott* 1755 (B, N); *Fuertes* 42 (B, F, Gen, K, N, P, S, Ut, Y); *Faris* 449 (N); *Ekman* 16024 (N).

JAMAICA (?): *Swartz* (S).

MARTINIQUE: *Plée* (P).

COLOMBIA: Goajira: *Dawe* 516 (K, N).—Atlántico: *Elias* 127 (N), 786, in part (N), 1079 (N), 1462 (N).—Bolívar: *Killip & Smith* 14705 (G, N, Y).—Cundinamarca: *Dawe* 69 (K, N); *André* 1626 (K); *Tracey* 265 (K).

PERU: *Dombey* 737 (B, Gen, P); *Ruiz & Pavón* (Bo, P); *Née* (Ma); *Maclean* (K); *Wilkes Expedition* (N).—Piura: *Gaudichaud* (Gen); *Haught* 69 (N), 209 (F, N); *Spruce* 6458 (BM, K).—Libertad: *Forbes* in 1912 (BM).—Lima: *Macbride & Featherstone* 523 (F, N); *Cuming* 1046 (BM, K, V; sheets of *Cuming* 1046 are variously labeled "Lima" and "Chile," the latter perhaps in error); *Mathews* 408 (K).—Huánuco: *Macbride* 4954 (F, G, N).—Huancavelica: *Weberbauer* 6456 (B, G, N).

CHILE: *Ruschenberger* (Ph); *Née* (Ma); *Jaffnel* 1076 (G).

BOLIVIA: *Bang* 2008 (K, N, Y).—Cochabamba: *Buchtien* 2389 (N, Y), 4057 (G); *Bang* 1251, in part (B, BM, G, K, N, Ph, Y); *Julio II.10* (N).—Tarija: *Fiebrig* 2777 (B), 2874 (B, Gen, K).

BRAZIL: *Tamberlik* (V).—Bahia: *Rose & Russell 19870* (N).—Matto Grosso: Corumbá, *Hoehne 3417* (N).

The material cited above shows more variation in leaf shape and indument than do the specimens under any one of the other varieties maintained in the present treatment. Quite possibly *gossypifolia* should be separated into several varieties, but I am reluctant to do so without having in hand at one time all available specimens. Were this course followed, typical *gossypifolia* would perhaps be restricted to Hispaniola, the type specimen in the Paris Herbarium agreeing perfectly with the other specimens from that island and having the very short indument described by Desvaux as "tomentose." Very close to this, however, are variants from northern South America. The form, rare in Cuba but very common in Mexico and Central America, with a viscous indument of longer, grayish hairs, would constitute another variety. Some specimens from South America also closely approach this, and others come nearer the typical form.

301c. *Passiflora foetida* var. *longipedunculata* Killip, var. nov.

Ubique dense et molliter pilosula, pilis albidis; folia hastata, longitudine et latitudine subaequalia, integerrima, parum undulata; pedunculi 6–7 cm. longi, tenuissimi; ovarium tomentosum.

Stem densely and softly pilosulous with whitish hairs averaging less than 1 mm. long; leaves hastate (length and greatest width subequal), entire and slightly undulate, densely pilosulous; peduncles 6 to 7 cm. long, very slender; bracts bipinnatisect; ovary white-tomentose.

Type in the United States National Herbarium, No. 1,490,641, collected near Marmolejo, State of Tamaulipas, Mexico, August 16, 1930, by H. H. Bartlett (*No. 10987*).

DISTRIBUTION: Northern Mexico and Lower California.

MEXICO: Lower California: Mulegé, *I. M. Johnston 3660* (Cal, N).—Tamaulipas: Cerro del Chino, *Bartlett 10729* (Mich).

301d. *Passiflora foetida* var. *acapulcensis* Killip, var. nov.

Caulis tenuis dense cano-villosulus; folia utrinque dense velutina, hastata, lobo medio lanceolato vel oblongo-lanceolato, lobis laterilibus orbiculato-ovatis, rotundis vel obtusis, undulatis; bracteae bi-tripinnatisectae; ovarium rufo-sericeo-hirsutum; fructus 1.5–2 cm. diam., flavidus, rubro-maculatus, hirsutulus.

Stem very slender, densely white-villosulous, the hairs about 0.4 mm. long; leaves hastate, 2.5 to 7 cm. long, 1.5 to 5 cm. wide (middle

lobe lanceolate or oblong-lanceolate, the lateral lobes orbicular-ovate, rounded or obtuse, undulate), densely velutinous on both surfaces; bracts up to 3 cm. long, bipinnatisect or tripinnatisect, the divisions not interwoven, gland-tipped; flowers 2 to 2.5 cm. wide; ovary sericeo-hirsute with brownish hairs; fruit 1.5 to 2 cm. wide, yellow, red-spotted, hirsutulous.

Type in the United States National Herbarium, No. 252,825, collected at Acapulco, State of Guerrero, Mexico, by E. Palmer (No. 306). Duplicate at Y. Represented also by a specimen from the same locality, collected by Le Folis (Bo).

DISTRIBUTION: Known only from the type locality, in western Mexico.

301e. *Passiflora foetida* var. *nigelliflora* (Hook.) Mast. Trans. Linn.

Soc. 27: 631. 1871; in Mart. Fl. Bras. 13, pt. 1: 582. 1872.

Passiflora nigelliflora Hook. Bot. Mag. 65: pl. 3635. 1839.

Dysosmia nigelliflora M. Roemer, Fam. Nat. Syn. 2: 151. 1846.

Passiflora Balansae Chod. Bull. Herb. Boiss. II. 2: 744. 1902.

(?) *Passiflora foetida* var. *hirsuta* f. *suberecta* Chod. & Hassl. Bull. Herb. Boiss. II. 3: 1127. 1903.

Passiflora foetida var. *sericea* Chod. & Hassl. Bull. Herb. Boiss. II. 3: 1127. 1903.

Stem sericeo-pilose throughout with whitish hairs 0.8 to 1.5 mm. long; leaves 4 to 7 cm. long, 3.5 to 6 cm. wide, evenly serrate, 3-5-lobed (middle lobe acute, the lateral lobes acutish or rounded), densely and softly villous; bracts up to 2.5 cm. long, pilose; ovary and styles densely long-pilose; fruit 1.5 to 2 cm. in diameter, yellowish, sparingly to densely pilose.

TYPE LOCALITY: Santiago de Estero, Río Dulce, western Argentina (type collected by Tweedie).

ILLUSTRATION: Bot. Mag. 65: pl. 3635.

DISTRIBUTION: Paraguay and Argentina.

PARAGUAY: Cerros de Paraguari, Hassler 6520 (BM, Bo, type of *P. foetida* var. *sericea*, Gen); Balansa 2206 (Bo, type of *P. foetida* var. *Balansae*); Fiebrig 1038 (B, P). Gran Chaco, Anisits 2195 (S); Hassler 2627 (B, BM, G, Gen, V). Chaco, Fiebrig 1235 (B, Gen, K). Sierra de Amanbay, Hassler 9965 (B).

ARGENTINA: Las Peñas, Lorentz 261 (B, P), 514 (B).—Jujuy: Esperanza, Fries 545 (N, S).—Tucumán: Stuckert 8912 (Gen), 13942 (Gen), 16977 (Gen). Leales, Venturi 625 (G, N). Río Sali,

Capital, *Venturi* 1167 (N). El Cajón, Burroyacu, 700 meters, *Venturi* 10338 (BM, G).—Chaco: Colonia Elisa, *Meyer* 2232 (N).—La Rioja: Guanchín, 1,600 meters, *Venturi* 7794 (G, K, N).—Córdoba: *Stuckert* 10320 (Gen), 19572 (Gen), 19782 (Gen); *Lossen* 308 (F), 312 (G, Mo, Ph). Córdoba, *Galander* in 1883 (Y); *Hieronymus* in 1879 (Y), in 1881 (Gen); *Kuntze* in 1891 (N, Y). Cumbre Chica, *King* 611 (BM).—Santa Fé; Estancia Banazzola, *Job* 1230 (N).—Buenos Aires: *Stuckert* 19964 (Gen).

I am at a loss to know how much variation to allow to the leaves in this variety. Hooker's formal description says, "foliis cordatis 5-lobis argute serratis," but later on, in pointing out its affinities he states, "but the present may at all times be distinguished by its truly cordate leaves, which are five-lobed (except in the upper part of the stem), and strongly serrated." The illustration accompanying this description shows the lateral lobes only slightly lobate, and among recently collected material is best matched by *Venturi* 7794. In *Venturi* 625 the leaves have 5 nearly equal lobes. In *Venturi* 1167 all the leaves are 3-lobed and the serration is less pronounced; this specimen, which is well matched by other material cited above, thus closely approaches several Bolivian specimens which I have placed in the variety *gossypifolia*. The leaves of *Hassler* 2627 have a narrower middle leaf lobe.

As mentioned in the general discussion under *P. foetida*, a satisfactory solution of these problems is impossible without having together at one time all available material. Notes made during the course of my studies at European herbaria indicate that I once considered the following collections to be *P. foetida* var. *nigelliflora*. Re-examination in the light of my varying concepts of the group may show that they are better referred to the typical form, or to the varieties *gossypifolia* and *vitacea*.

BRAZIL: *Jobert* 1039 (P); *Sello* 2323 (B, K), 3580 (B).—Rio Grande do Sul: Cachoeiras, *Malme* 1291 (S).

PARAGUAY: Gran Chaco, *Balansa* 2208 (cited by Chodat as *P. foetida* var. *vitacea*, Gen, K). Tapucay, *Hassler* 1631 (Bo, cited by Chodat & Hassler as *P. foetida* var. *typica*).

Passiflora foetida var. *hirsuta* f. *suberecta* Chod. I know only from the brief description.

301f. *Passiflora foetida* var. *oaxacana* Killip, var. nov.

Ubique dense cano-villosa; folia palmatim 5-lobata, lobis sinuatis, medio ad basin latissimo; bracteae bipinnatisectae, segmentis divaricatis, numerosis; ovarium dense villosum.

Plant densely cano-villous throughout; leaves eglandular, palmately 5-lobed, the lobes sinuate, the middle lobe broadest near base; bracts bipinnatisect, the segments divaricate at nearly right angles, numerous; ovary densely villous; fruit about 2.5 cm. in diameter, yellowish.

Type in the United States National Herbarium, No. 229,235, collected at San Gerónimo, Oaxaca, Mexico, altitude 60 meters, July, 1895, by E. W. Nelson (No. 2762). Duplicate at G.

DISTRIBUTION: Oaxaca, southeastern Mexico.

MEXICO: Oaxaca: Puerto Angel, *Morton & Makrinus 2616* (N).

This has a general resemblance to var. *arizonica*, the principal differences being in the shape of the middle leaf lobe and the absence of teeth at the margin of the leaves. The outline of the foliage is like that of var. *hibiscifolia*, and the indument like that of var. *nigelliflora*. In the second collection cited the leaves are less pronouncedly 5-lobed.

301g. *Passiflora foetida* var. *arizonica* Killip, var. nov.

Ubique cano-villosa; folia palmatim 5-lobata, lobis sinuatis vel sublobatis, denticulatis, lobo medio ad basin angusto; bractee bipinnatisectae, laciniis paucis, divaricatis; ovarium pilosum.

Plant densely grayish-villous throughout; leaves palmately 5-lobed, the lobes sinuate or sublobate, denticulate, ciliate, the middle lobe narrowed at base; bracts once pinnatisect, the segments divaricate at nearly right angles, relatively few; ovary pilose; fruit about 3 cm. in diameter, yellowish, pilose.

Type in the United States National Herbarium, No. 1,365,002, collected in Fresnal Canyon, Baboquivari Mountains, Arizona, September 26, 1927, by G. J. Harrison (No. 4774).

DISTRIBUTION: Southern Arizona and northern Mexico.

ARIZONA: Baboquivari Mountains, *Peebles 8806* (N); *Gilman B78* (N).

MEXICO: Los Promontorios, *Russell & Souviron 10* (N).

The nearest relative of this is the Argentine variety, *vitacea*, both being characterized by a much deeper lobation of the leaves than in other varieties of *P. foetida*.

301h. *Passiflora foetida* var. *vitacea* Mast. in Mart. Fl. Bras. 13, pt. 1: 583. 1872.

Stem hispid-hirsute with yellowish hairs; stipules semi-annular about the stem, cleft into unequal, gland-tipped segments, one of

which, much longer than the others is linear and often pinnatifid; leaves hastate or subhastate (middle lobe narrowed toward the base, lobulate or incised, the lateral lobes often lobulate), irregularly serrate or serrulate, hirsute or hispid-hirsute; bracts bipinnatisect or tripinnatisect, about as long as the sepals, the segments gland-tipped; ovary and styles villous.

TYPE LOCALITY: "Banda oriental" (Uruguay).

DISTRIBUTION: Paraguay, Uruguay, and northern Argentina, up to 1,100 meters altitude.

URUGUAY: Banda Oriental, *St. Hilaire* 2529 (P, type). Tacuarembó, *Arechavaleta* 47 (Gen). Laguna Caluendas, *Lorentz* 1750 (B, N).

PARAGUAY: Valenzuela, *Hassler* 7132 (B, BM, Bo, Gen, K). Igatini, *Hassler* 5437 (Bo). Cordillera de Peribebuy, *Balansa* 2207 (Gen, K).

ARGENTINA: *Jörgensen* 2839 (N). Las Palmas, *Jörgensen* 2616 (G, N).—Tucumán: Famailla, *Venturi* 1628 (N). Leales, *Venturi* 745 (N). El Puestito, Burroyacu, *Venturi* 7504 (F, G, N).—Córdoba: Sacanta, *Stuckert* 9915 (Gen), 14999 (Gen). San Teodoro, *Stuckert* 14849 (Gen), 14962 (Gen).

These specimens show a good deal of variation in the form of the leaves, due to a varying degree of lobation. All are characterized by an indument of long, stiff hairs on the leaves and by the development of one of the segments of the stipules, a condition which led Masters to describe the stipules as linear.

In addition to the specimens cited above, some referred to the typical form and to var. *nigelliflora* may belong here.

301i. *Passiflora foetida* var. *santiagana* Killip, var. nov. Fig. 1, c.

Parum viscosa, caulibus et petiolis cano- vel flavido-hirsutis; folia dense lanuginoso-hirsuta, pilis flavido-brunneis, palmatim 5-lobata, lobis oblongis vel oblongo-spathulatis, medio saepe reducto; bractae tripinnatisectae; ovarium cano-pilosum.

Plant scarcely viscous; stem and petioles hirsute with white or yellowish hairs; leaves up to 3 cm. long, palmately 5-lobed (lower lobes often reduced; lobes oblong or oblong-spatulate, rounded or obtuse at apex), densely lanuginous-hirsute with yellow-brown hairs; bracts about 1.5 cm. long at postanthesis, tripinnatisect; ovary white-pilose; fruit 2 to 2.5 cm. in diameter.

Type in United States National Herbarium, No. 403,071, collected in vicinity of Santiago, Cuba, February 14, 1902, by Pollard, Palmer, and Palmer (No. 279). Duplicates at F, Minn, Ph, and Y.

DISTRIBUTION: Eastern Cuba.

CUBA: Oriente (throughout southern part): *Linden* 1703 (B, BM, Bo, Brux, Gen, K); *Britton* 1891 (Y), 1972 (B, N, Y); *Britton, Britton & Cowell* 12546 (Y), 12662 (N, Y), 12852 (Y); *León* 3732 (HS, N, Y), 3934 (Y), 10555 (HS, Y), 12187 (HS); *Clément* 173 (HS); *Ekman* 2902 (S), 7965 (S); *Earle* 83 (F, Y), 1649 (Y); *Hioram* 1887 (Y), 1936 (Y); *Eggers* 4618 (B); *Millspaugh* 1003 (F), 1065 (F); *Gundlach* 18 (B); *Hamilton* 151 (Y); *Havard* 34 (Y), 36 (Y); *Acuña* 5167 (HV); *Née* (Ma); *Bartsch* in 1930 (N).

301j. *Passiflora foetida* var. *Moritziana* (Planch.) Killip ex Pulle, Fl. Suriname 3, pt. 1: 318. 1937.

(?) *Passiflora Hermannii* DC. Prodr. 3: 332. 1828.

Passiflora Moritziana Planch. Ann. Sci. Nat. V. Bot. 17: 175. 1873.

Stem, petioles, and peduncles densely and minutely white-pilosulous; leaves subhastately 3-lobed (middle lobe: lateral lobes, 4 or 3:1), velutinous on both surfaces; bracts once (rarely twice) pinnatifid, the segments scarcely longer than the width of the rachis; ovary velutinous.

TYPE LOCALITY: Colonia Tovar, Venezuela.

ILLUSTRATIONS: (?) Pluk. Alm. pl. 212, f. 1; (?) Herm. Parad. 176. pl. 176.

DISTRIBUTION: Surinam, Curaçao, northern Venezuela, and northern Colombia.

SURINAM: Marowijne River, *Lanjouw* 558 (Ut).

CURACAO: *Killip & Smith* 21035 (A, G, N, Y), 21038 (G, N, Y); *Britton & Shafer* 2970 (N, Y); *Eggers* 16015 (F); *Boldingh* 4701 (Ut, Y); *Benzon* 2098 (Cop). Aruba Island, *Suringar* in 1885 (B); *Boldingh* 6216 (Ut, Y). Bonaire, *Suringar* in 1885 (B); *Boldingh* 7107 (Ut), 7407 (Ut); *Read* in 1839 (Ph).

VENEZUELA: *Entada*, *Warming* in 1891 (Cop).—Nueva Esparta: Margarita Island, *Miller & Johnston* 63 (B, Bo, Cop, F, K, N, V, Y), 85 (B, BM, F, K, Minn, N, Y).—Federal District: Antimano, *Archer* 3044 (N).—Aragua: Colonia Tovar, *Moritz* 437 (BM, K, P, type);

Fendler 475 (Bo, G, Gen, K, Ph, Y).—Falcón: La Vela de Coro, *Curran & Haman 479* (G, N, Y).—Lara: Barquisimeto, *Saer 11* (N). El Tocuyo, *Pittier 13109* (Gen, N, Ph, Y).

COLOMBIA: Magdalena: Santa Marta, *Killip & Smith 21088* (N).

In all probability this is the plant figured (*pl. 212, f. 1*) by Plukenet and later by Hermann (*pl. 176*), these references having been the cause of much confusion. Plukenet's description is indefinite, but Hermann says, "Albus folio Ibisei sericeo-trilobatis. Calyx tribus parvis foliolis sed integris constat," the last sentence evidently referring to the involucre. The figure shows a 10-parted corolla, and is substantially a reproduction of Plukenet's illustration. Linnaeus listed both these references under *P. hirsuta* in the *Species Plantarum*, but his first reference, to the *Amoenitates*, and a Plumier figure also cited, show that this is *P. suberosa*, in the present broad concept of that species. De Candolle in proposing *P. Hermannii*, which he placed among doubtful species, said, "Foliis velutinis trilobatis involucreo minimo foliolis 3 integris, calyce 10-partito; in Curacao. Affinis hinc *P. hirsutae*, illinc *P. hibiscifoliae*." The difficulty, of course, has been the reconciling of the small bracts and the hibiscus-shaped leaves, like those of variants of *P. foetida*.

In the typical form the bracts are very small for *Dysosmia*, and are only once pinnatifid. In a few specimens, as *Johnston 63* and *85* and *Fendler 475*, they are twice pinnatifid, these specimens being intermediate between this variety and typical *P. foetida*.

301k. *Passiflora foetida* var. *hirsutissima* Killip, Carnegie Inst. Wash. Publ. 461: 326. 1936.

Plant densely lanuginous-hirsute throughout; leaves subhastate (midnerve: lateral nerves, 5:3), the middle lobe ovate or oblong-ovate, abruptly acute; bracts about 2 cm. long at anthesis, tripinnatisect, the segments closely interwoven, densely long-pilose; flowers about 2.5 cm. wide, pale pink, the sepals and petals densely spotted with deep pink within; ovary glabrous.

TYPE LOCALITY: Sepacuité, Alta Verapaz, Guatemala.

DISTRIBUTION: Known only from the type locality.

GUATEMALA: Alta Verapaz: Sepacuité, *Owen 9* (N, type).

The indument is denser than in most other varieties of *P. foetida*; the bracts are closely interwoven, in this respect resembling var. *hispida*.

3011. *Passiflora foetida* var. *hispida* (DC.) Killip ex Gleason, Bull. Torrey Club 58: 408. 1931.

Passiflora foetida var. *variegata* G. F. W. Mey. Prim. Fl. Esseq. 226. 1818, in part.

Passiflora foetida L. sensu Mast. in Mart. Fl. Bras. 13, pt. 1: 582. 1872. Not *P. foetida* L.

Passiflora hispida DC. ex Triana & Planch. Ann. Sci. Nat. V. Bot. 17: 172. 1873.

Passiflora foetida var. *glabrifolia* Miq. ex Triana & Planch. Ann. Sci. Nat. V. Bot. 17: 172. 1873, as synonym.

Passiflora Marigouja Perrottet ex Triana & Planch. Ann. Sci. Nat. V. Bot. 17: 172. 1873, as synonym.

Passiflora foetida var. *hirsuta* f. *latifolia* Kuntze, Rev. Gen. Pl. 254. 1891.

Stem densely hispid with spreading, yellowish hairs 2 to 3 mm. long, not viscous; leaves averaging 7 cm. long and wide, 3-lobed (midnerve: lateral nerves, 5:3–3.5, the middle lobe broadly lance-ovate, abruptly acute or abruptly acuminate, the width more than half the length, the lateral lobes triangular-ovate, subobtusate or acute), subentire or remotely denticulate, densely ciliate with gland-tipped hairs, sparingly appressed-hispid-hirsute on both surfaces; bracts 3 to 4 cm. long, 2 to 2.5 cm. wide, tripinnatisect or quadripinnatisect, the segments closely interwoven; ovary glabrous; fruit globose, 2 to 3 cm. in diameter, yellowish.

TYPE LOCALITY: Brazil.

ILLUSTRATION: Jacq. Eclog. Pl. 2: *pl.* 122.

DISTRIBUTION: Common in the West Indies, and in South America to northern Peru and Amazonian Brazil; rarer farther south in Brazil. Also in the Old World tropics.

BAHAMAS: *Hitchcock* in 1890 (F); *Curtiss* 42 (B, BM, F, Gen, HV, K, Minn, N, Y); *Wight* 160 (B, F, HV, K, Y); *Coker* 282 (Y); *Britton & Brace* 697 (F, K, Y); *Wilson* 8215 (F, Y).

CUBA: Pinar del Río: *Roig* 4198 (HV).—Oriente: *Fajardo*, *Hioram* 1004 (N).

JAMAICA: *Pennell* 11208 (N, Ph, S); *Maxon & Killip* 1546 (B, F, N, Y), 1739 (N); *Maxon* 10347 (N, Y); *Perkins* 190 (B); *Millspaugh* 2019 (F); *Britton* 1334 (J, Y), 2879 (Y); *Harris* 8520 (B, BM, J, Y), 12324 (J, Y); *W. J. Thompson* 7924 (B, F, Y); *Lloyd* (F); *Alexander*

(B, Gen), *Lang* 314 (Ph); *Crawford* 837 (Ph); *Purdie* (K); *Orcutt* 312 (BM).

PUERTO RICO: *Underwood & Griggs* 113 (N, Y), 346 (N); *Heller* 1029 (F, N, Y), 6119 (F, Gen, HV, N, Ph, Y); *Shafer* 2509 (N, Y); *Britton, Britton & Marble* 2244 (N, Y); *Britton & Wheeler* 117 (N, Y); *Britton, Cowell & Hess* 1871 (N, Y); *Sintenis* 1682 (B, Gen, J, N), 2759 (B, Gen), 4944 (B, N, Y); *Britton, Britton & Brown* 5909 (Y); *Krug* 487 (B); *Blauwer* 1031 (Bo, Gen); *F. H. Sargent* 193 (N); *Garber* (Ph); *Warming* 584 (Cop); *Guayama, Kuntze* 565 (Y, type of *P. foetida* var. *hirsuta* f. *latifolia*).

ST. CROIX: *Ricksecker* 233 (B, F, N), 271 (B, F, Minn, N, Y); *Rose, Fitch & Russell* 3590 (N); *J. B. Thompson* 37 (N, Y), 153 (Y).

ST. THOMAS: *Schomburgk* (Y); *Wydlar* 100 (Gen, V); *Ehrenberg* 301 (B); *Friedrichsthal* 33 (V) (many of the Friedrichsthal specimens are accompanied by labels bearing the printed words "Friedrichsthal" and "Guatemala," with other localities written in but the "Guatemala" not crossed off; thus in the present instance the label reads, "Guatemala. St. Thomas").

TORTOLA: *Britton & Shafer* 706 (Y); *Fishlock* 7 (Y).

ST. MARTIN: *Rijgersmaa* (S).

SABA: *Boldingh* 2048 (Ut, Y).

ST. KITTS: *Britton & Cowell* 252 (Y).

MONSERRAT: *Shafer* 226 (N, Y).

GUADELOUPE: *Duss* 606 (B), 2230 (B, Cop, F, N, Ph, Y); *Perrottet* (Gen); *Duchassaing* (B); *Quentin* 12 (P); *Stehlé* 312 (N), 547 (N), 1540 (N).

DOMINICA: *Hoskin* in 1841 (B); *Lloyd* 549 (Y); *Bryant* 53 (K).

MARTINIQUE: *Duss* 885a (B), 885b (B, N), 885c (Y), 1036a (Y); *Hahn* 909 (Gen, V), 1327 (Gen, Ph, V); *Steinheil* 30 (P); *Plée* (B, P); *Mouret* 214 (B).

ST. VINCENT: *H. H. Smith* 796 (B, N); *Guilding* (K, Y); *Eggers* 7040 (B).

GRENADA: *Broadway* in 1905 (N, Y).

BARBADOS: *Bovell* 21 (Y).

TRINIDAD and TOBAGO: *Broadway* 4476 (Brux), in 1918 (N, T, Y); *Hart* 5720 (T).

FRENCH GUIANA: *Broadway* 966 (K, N, Y); *Perrottet* 52 (Gen); *Rothery* 115 (B).

SURINAM: *Archer* 2654 (N), 2873 (N); *Focke* 638 (Ut); *Hostmann* 652 (B, BM, Gen, Leid, P, Ut, V, Y); *Kappler* 1918 ("*P. foetida* var. *glabrifolia*"; Bo, Gen, P, S, Ut); *Lanjouw* 107 (Ut); *Menge* (Brux); *Pulle* 38 (Ut); *Samuels* 327 (B, G, K, Leid, Y), 503 (B, K, Leid, Y); *Soeprata* 27 (Ut), 75 (Ut), 174 (Ut); *Tulleken* 311 (Leid); *Went* 213 (Ut); *Wulfschlägel* 216, in part (Ut).

BRITISH GUIANA (throughout lowlands): *Hitchcock* 17020 (G, N, Y), 17181 (G, N, Y); *Jenman* 7870 (BG, N); *Gleason* 47 (K, N, Y); *De la Cruz* 1169 (Y), 1218 (Y), 1247 (N, Y), 1274 (N, Y), 2174 (G, N, Y), 2876 (Y), 3049 (K, N, Y), 3161 (K, N, Y), 3337 (N, Y), 3744 (N, Y), 4021 (G, N, Y), 4299 (G, N, Y); *Campbell* in 1871 (K).

VENEZUELA: Miranda: Guatire, *Pittier* 7842 (N). Paparo, *Pittier* 6313 (B, N, Y). Río Chico, *Jahn* 1250 (N).—Federal District: Cabo Blanco, *Pittier* 10321 (B, Gen, N, Y).—Aragua: Ocumaré Valley, *Pittier* 12161 (Gen, N, Y).—Carabobo: Puerto Cabello, *Pittier* 8815 (B, G, N, Y).—Trujillo: La Concepción, *Reed* 1082 (N).

COLOMBIA: Bolívar: Río Sinú, *Pennell* 4660 (N, Y).—Norte de Santander: Cúcuta. *Killip & Smith* 21000 (A, G, N, Y).—Cundinamarca: Tocaima, *Triana* (Gen).—Antioquia: Medellín, *Toro* 361 (N, Y).

ECUADOR: *Lehmann* 182 (Bo, N); *Vidal-Sénèze* 4714 (P).—Manabi: *Eggers* 15465 (B, F, P).—Guayas: Guayaquil, *Hitchcock* 20017 (G, N, Y); *Fraser* (BM, Gen); *Sodirol* 561 (B). Balao, *Eggers* 14597 (N). Barraganetal, *Stevens* 329 (N).

PERU: Tumbes: Hacienda La Choza, *Weberbauer* 7690 (F).

BRAZIL: *Collector not known* (P, type).—Amazonas: Panure, *Spruce* 2814 (Cop, Gen, K, P, V, Y). Río Negro, *Tate* 133 (Y); *Weiss & Schmidt* in 1907 (Y).—Pará: Tapaná, *Killip & Smith* 30319 (N, Y). Purús, *Huber* 4725 (Go). Santarem, *Spruce* 702 (P).—Espírito Santo: *Martius* (Brux).

This, the commonest representative of *Dysosmia* in the West Indies and northern South America, is the form that has often been considered the true *P. foetida* of Linnaeus. It is readily recognized, both in the field and in herbaria, and shows little variation. The bracts are relatively large, with closely interwoven segments.

The earliest name which can positively be associated with this plant is that given it by Triana and Planchon, who made use of an herbarium name of De Candolle's.

301m. *Passiflora foetida* var. *isthmia* Killip, var. nov.

Caulis pilis divaricatis flavidis dense hirsutus; folia in forma generali suborbiculata, lobo medio ovato-deltoideo, lobis lateralibus multo reductis; bractee juveniles dense pilosae, segmentis multo intertextis; ovarium glabrum.

Stem, petioles, and peduncles densely hirsute with spreading, yellow-brown hairs averaging 2 mm. long; petiole sparingly glandular-ciliate; leaves suborbicular in general outline, 3.5 to 7 cm. long, 4 to 9 cm. wide (lateral lobes usually reduced to a short tooth, the middle lobe ovate-deltoid), hirsute; bracts densely pilose when young, the segments closely interwoven; ovary glabrous; fruit 2 to 2.5 cm. in diameter, yellowish.

Type in the United States National Herbarium, No. 1,180,247, collected at Fort San Lorenzo, Fort Sherman Military Reservation, Canal Zone, Panama, June 14, 1923, by W. R. Maxon (No. 7013).

DISTRIBUTION: Panama and along Pacific coast to Ecuador; known from one locality in the Magdalena Valley, Colombia.

PANAMA: Canal Zone: *Pittier* 1725 (N), 2089 (BM, N, Y), 2474 (N, Y), 2678 (N, Y), 3569 (Y), 5508 (N), 6954 (N); *Piper* 5894 (N), 5941 (N); *Standley* 25554 (N), 26911 (N); *Cowell* 393 (Y); *Hayes* 71 (G), 697 (Y); *Seemann* 503 (K); *Kenoyer* 570 (N); *Fendler* 117 (BM, G, K, P); *Bailey & Bailey* 385 (N).—Panama: Tapia River, *Maxon* 6719 (N).

COLOMBIA: Santander: Nariño, *Killip & Smith* 14963 (N).—El Valle: Buenaventura, *Killip* 5289 (G, N); *Pittier* 1504 (N). Dagua, *Lehmann* (K).

ECUADOR: Guayas: San Ignacio, *Heilborn* 49 (Gen, S).

This is the common representative of *Dysosmia* on the Isthmus of Panama. It has the characteristic bracts and indument of var. *hispida*, but the lateral lobes of the leaves are greatly reduced and the bracts are densely long-pilose, though occasionally they become glabrescent with age.

301n. *Passiflora foetida* var. *muralis* (Barb. Rodr.) Killip, comb. nov.

Passiflora muralis Barb. Rodr. Contr. Jard. Bot. Rio de Janeiro 1: 29. 1891; 3, pt. 2: pl. 13b. 1891.

Plant very viscous; stem hispid-hirsute with yellowish hairs; stipules semi-annular or subreniform, deeply pinnatisect, many of the segments pinnatisect; leaves hastate or subhastate (middle lobe

broadly ovate to ovate-lanceolate, acute, the lateral lobes suborbicular or lance-ovate, rounded), closely denticulate, glandular-ciliate, subcoriaceous, lustrous, appressed-hirsute above, strigillose beneath with the hairs glandular-thickened at base; bracts glabrous, 2 to 2.5 cm. long, bipinnatisect or tripinnatisect, the segments not closely interwoven; ovary glabrous; fruit globose, 2 to 2.5 cm. in diameter.

TYPE LOCALITY: Forte do Cabedello, State of Parahyba, Brazil (type collected by Barbosa Rodriguez).

ILLUSTRATION: Contr. Jard. Bot. Rio de Janeiro 3, pt. 2: *pl.* 13b. 1891.

DISTRIBUTION: Eastern Brazil.

BRAZIL: *Booz* (Y). Rio Parapintinga, *Pohl* 2629 (V).—Ceará: *Löfgren* 116 (N).—Pernambuco: *Tapera*, *Pickel* in 1931 (BM, G, N).—Bahia: *Toca de Onça*, *Rose & Russell* 20080 (N). Bahia, *Blanchet* 874 (Y).

Barbosa's plate is well matched by *Rose & Russell* 20080. In the *Pickel* specimens the leaves are more nearly hastate and less densely glandular-ciliate. This variety is perhaps too close to the following one.

301o. *Passiflora foetida* var. *strigosa* S. Moore, Trans. Linn. Soc. II. 4: 365. 1895.

Stem slender, glabrous, rarely sparingly hirsute; stipules semiannular, the segments filiform; leaves subhastate, rarely subentire (middle lobe ovate-lanceolate, acuminate, the lateral lobes broadly ovate, subacute), entire or remotely serrulate, thin-membranous, dull, sparingly strigillose beneath with the hairs glandular-thickened at base; bracts about 2 cm. long, tripinnatisect, the segments not closely interwoven; ovary glabrous; fruit about 1.5 cm. in diameter, yellow.

TYPE LOCALITY: Corumbá, Matto Grosso, Brazil.

DISTRIBUTION: Central and eastern Brazil.

BRAZIL: *Gardner* 1838 (K). Western Brazil, *Tamberlik* (V). *Cachoeira*, *Pohl* 2308 (V).—Amazonas: Falls of Rio Madeira, *Rusby* 2457 (F, N, Ph, Y). Rio Branco, *Ule* 7983 (B, K); *Kuhlmann* 3411 (Ut), 4671 (S, Ut). Juruá, *Ule* 5111 (B, Gen, K).—Pará: *Pará*, *Moss* 36 (N); *Dahlgren & Sella* 401 (N). Tocantin, *Weddell* 2328 (P). Rio Tapajós, *Krukoff* 1208 (Y). Santarem, *Monteiro da Costa* 193

(N).—Ceará: Quixadá, *Swallen 4474* (N). Fortaleza, *Drouet 2367* (G).—Matto Grosso: Corumbá, *Moore 915* (B, BM, type). Rio Paraguay, *Moore 820* (BM).

This is a slender plant with very thin leaves. The name *strigosa* is scarcely appropriate, inasmuch as the indument is very scant. The basal lobes are almost wanting in the Drouet specimen.

301p. *Passiflora foetida* var. *fluminensis* (M. Roemer) Killip, comb. nov.

Passiflora foetida Vell. Fl. Flumin. 9: pl. 86. 1827. Not *P. foetida* L. (1753).

Dysosmia fluminensis M. Roemer, Fam. Nat. Syn. 2: 150. 1846.

Plant densely hirsute throughout (except the ovary) with long, eglandular, yellowish hairs 2 to 4 mm. long; leaves hastate, the length and greatest width subequal, the middle lobe broadly lanceolate, the lateral lobes suborbicular-ovate; bracts 2.5 to 3 cm. long, tripinnatisect, hirsute, the segments not closely interwoven; ovary glabrous; fruit 1.5 to 2 cm. in diameter, yellowish.

TYPE LOCALITY: Brazil.

DISTRIBUTION: Southeastern Brazil.

BRAZIL: Rio de Janeiro: Rio de Janeiro, *Gaudichaud 1026* (Gen, P, V); *Riedel & Luschnath 714* (N); *Glaziou 20334* (B, Cop, K); *Pohl & Schott 2454* (V).

Velloso's illustrations were unaccompanied by descriptions, and there always is uncertainty in associating herbarium specimens with them. Roemer's description was evidently based solely upon the illustration. Gardner described a wholly different plant under the name *P. Vellozii*, erroneously citing as a synonym the Velloso figure (pl. 86). Triana and Planchon were correct, I believe, in identifying (Ann. Sci. Nat. V. Bot. 17: 175. 1873) *Gaudichaud 1026* with the plate in question, though they followed Gardner in citing it, as well as the Roemer name, as *P. Vellozii*.

301q. *Passiflora foetida* var. *hastata* (Bertol.) Mast. Trans. Linn. Soc. 27: 631. 1871; in Mart. Fl. Bras. 13, pt. 1: 583. 1872.

Passiflora hastata Bertol. Fl. Guatim. 427. 1840; Walp. Repert. Bot. 2: 221. 1843.

Dysosmia hastata M. Roemer, Fam. Nat. Syn. 2: 149. 1846.

Plant not viscous, densely hirsute throughout with long, yellowish hairs; leaves hastate (midnerves: lateral nerves, about 5:2–2.5, the

middle lobe lanceolate or oblong-lanceolate, acute or acuminate, the lateral lobes ovate, rounded or acute), the hairs of the leaves closely appressed; bracts 3 to 3.5 cm. long at post-anthesis; ovary glabrous; fruit 2.5 to 3 cm. in diameter.

TYPE LOCALITY: Escuintla, Guatemala (type specimen collected by Bertoloni).

DISTRIBUTION: Southeastern Mexico to Guatemala and British Honduras.

MEXICO: *Hahn* (Brux, P).—Veracruz: *Liebmann*, *Passiflora* No. 45 (Cop), No. 51 (Cop). Papantla, *Liebmann*, *Passiflora* No. 46 (Cop). Tantoyuca, *Ervendberg 158b* (Bo, Gen, Ph, Y). Zacuapan, *Purpus* (grown at Washington, D. C.; Gen, N, Ph, S). Córdoba, *Bourgeau 2336* (B, Brux, G, P, S). Veracruz, *Schnée* (N, P); *Seler 5116* (B).

GUATEMALA: Morales, *Deam 6028* (N).—Alta Verapaz: Cajval, *Pittier 234* (BM, N, Y). Sehachichá, *Türkheim 8214* (N). Chamá, *H. Johnson 175* (N).—Retaluleu: *Bernoulli & Cario 2821* (B, K, S).

BRITISH HONDURAS: Mountain Pine Ridge, *Bartlett 11927* (Mich).

Although I have not seen the type of *P. hastata*, *Pittier 234* agrees best with the description. Among the varieties of *P. foetida* in Mexico and Central America this comes closest to the typical form in the shape of the leaves and their indument.

301r. *Passiflora foetida* var. *lanuginosa* Killip, Carnegie Inst. Wash. Publ. 461: 325. 1936.

Stem hirsute with divaricate, golden brown hairs about 2 mm. long, rarely shorter; leaves hastate, subhastate, or rarely sublanceolate (midnerves: lateral nerves, about 2:1, rarely as much as 4:1), above ferruginous-hirsutulous or hirsute, beneath softly lanuginous, hirsute on the nerves and veins; bracts 1.5 to 5 cm. long, the ultimate segments usually elongate, not closely interwoven; ovary glabrous; fruit 2 to 3 cm. in diameter, yellowish, or reddish.

TYPE LOCALITY: Mirador, Veracruz, Mexico.

DISTRIBUTION: Eastern Mexico to Guatemala and British Honduras.

MEXICO: *Née* (Ma); *Sessé & Mociño 4470*, in part (Ma), 4471 (Ma).—Tamaulipas: Tampico, *Palmer 21* (BM, G, Gen, N, Y), 487 (G, Mo, N, Y). Victoria, *Palmer 221* (F, G, Mo, N, Y), 515 (G, N). Tamaulipas, *Berlandier 209* (Gen).—San Luis Potosí: Tancanhuitz,

Nelson 4381 (N). Las Palmas, *Rose & Hough* 4875 (N). San Dieguito, *Palmer* 124 (K, Mo, N, Y). Valles, *Fisher* 3342 (N).—Veracruz: *Liebmann* 4088 (Cop), 4090–4093 (all Cop), 4097 (Cop). Mirador, *Liebmann* 4096 (*Passiflora* No. 53; Cop, N, type); *Purpus* 8805 (N); *Galeotti* 3660 (Brux). Jalapa, *Pringle* 7823 (G, N). Zacuapan, *Purpus* 2064 (B, Cal, F, G, Minn, N, Y). Orizaba, *Bourgeau* 2438 (Bo, G, P). Córdoba, *Orcutt* 3350 (F).—Oaxaca: Santo Domingo, *Nelson* 2703 (N). Tuxtepec, *Nelson* 373 (N).—Chiapas: Ocozaquanlilla, *Seler* 2119 (B).—Campeche: Tuxpeña, *Lundell* 1034 (Mich, N).

GUATEMALA: Petén: La Libertad, *Lundell* 2227 (N), 3357 (N). Lake Petén, *Lundell* 3125 (N).

BRITISH HONDURAS: Belize River, *Lundell* 3843 (N). El Cayo, *Chanek* 1 (N). Mountain Pine Ridge, *Lundell* 6900 (N). Salt Creek, *O'Neill* 8804 (CU). Boomtown, *O'Neill* 8803 (CU).

The leaves of the type specimen are very densely lanuginous, more so than in the case of most of the other specimens cited. *Lundell* 6900 is a peculiar variant, with sublanceolate leaves, the basal lobes being much reduced.

301s. *Passiflora foetida* var. *parvifolia* Killip, var. nov.

Caulis tenuis, pilis albidis leviter pilosulus; folia hastata, parva, ad 2 cm. longa., 1.5 cm. lata., utrinque ferrugineo-lanuginosa; bractee bipinnatisectae, segmentis rectis; ovarium glabrum.

Stem slender, finely pilosulous with white hairs, much branched, the branches very leafy; leaves hastate, 5 to 20 mm. along midnerve, 3 to 6 mm. along lateral nerves, ferruginous-lanuginous on both surfaces; bracts 1.5 to 1.8 cm. long, bipinnatisect, the segments straight or nearly so; ovary glabrous; fruit about 1.5 cm. in diameter, reddish.

DISTRIBUTION: Known only from the type material from western Mexico.

Type in the United States National Herbarium, No. 252,833, collected in the vicinity of Acapulco, State of Guerrero, Mexico, 1894–1895, by E. Palmer (No. 315).

301t. *Passiflora foetida* var. *tepicana* Killip, var. nov.

Caulis tenuis, cano-pilosulus; folia angulato-subhastata, tenuiter membranacea, glabrescentia, infra in nervis minute adpresso-pilosula; bractee bipinnatisectae; ovarium glabrum.

Stem slender, finely white-pilosulous; leaves subangulately 3-lobed, 2.5 to 5 cm. long, 2 to 4 cm. wide (middle lobe: lateral lobes, 2.5:1), glabrescent above, minutely appressed-pilosulous on nerves beneath, thin-membranous; flowers about 4 cm. wide, white; bracts 2 cm. long at anthesis, bipinnatisect or tripinnatisect; ovary glabrous.

Type in the United States National Herbarium, No. 300,891, collected between Pedro Paulo and San Blascito, foothills of the Sierra Madre, Tepic, Mexico, August 4, 1897, by J. N. Rose (*No. 1998*). Duplicate at G.

DISTRIBUTION: Known only from the State of Tepic, Mexico.

MEXICO: Tepic: San Blas, *Nelson 4351* (N).

The indument and shape of the leaves suggest the variety *gossypifolia*.

301u. *Passiflora foetida* var. *sanctae-martae* Killip, var. nov.

Caulis glaber; folia irregulariter serrata, utrinque sparse hirsuta, trilobata, lobo medio ovato vel late ovato-lanceolato, lobis lateralibus triangulato-ovatis; bractearum segmenta non conferte intertexta; ovarium glabrum.

Stem glabrous; leaves 3-lobed (middle lobe: lateral lobes, 3:2; length along midnerve 4 to 6 cm., along lateral nerves 3 to 4 cm., middle lobe ovate or broadly ovate-lanceolate, acute, the lateral lobes triangular-ovate, acute), irregularly serrate, sparingly hirsutulous on both surfaces; bracts 2.5 to 3 cm. long, bipinnatisect or tripinnatisect, the segments not closely interwoven; flowers about 2.5 cm. wide, pink; ovary glabrous; fruit about 1.5 cm. in diameter, yellowish.

Type in the United States National Herbarium, No. 1,356,044, collected near Santa Marta, Magdalena, Colombia, in arid coastal belt, April 5, 1927, by E. P. Killip and A. C. Smith (*No. 21103*). Duplicates at G and Y.

DISTRIBUTION: Northern coast of Colombia.

COLOMBIA: Magdalena: Santa Marta, *H. H. Smith 1532* (B, BM, Brux, CM, F, G, Gen, K, N, P, Ph, S, Ut, Y); *Pittier 1598* (G, N, Y); *Goudot* (K); *Schultze 266* (B). Dibulla, *Seifriz 227* (N). Masinga, *Instituto de La Salle Herb.* (Bog).

301v. *Passiflora foetida* var. *Gardneri* Killip, var. nov.

Caulis pilosulus; folia subhastata, glanduloso-serrulata, supra adpresso-hirsuta et lanuginosa, subtus in nervis venisque adpresso-

hirsuta; bracteae bipinnatisectae vel tripinnatisectae, pilosulae, segmentis non conferte intertextis; ovarium glabrum.

Stem pilosulous with grayish hairs averaging 1 mm. long; leaves subhastate (midnerve: lateral nerves, 2:1; middle lobe ovate-lanceolate, acuminate, the basal lobes ovate-orbicular, acute), regularly glandular-serrulate, appressed-hirsute and lanuginous above, appressed-hirsute on the nerves and veins beneath; bracts about 3.5 cm. long, bipinnatisect or tripinnatisect, pilosulous, the segments not closely interwoven; ovary glabrous; fruit globose, about 2 cm. in diameter, yellowish.

Type in the Gray Herbarium, collected in the State of Alagôas, Brazil, in 1838, by G. Gardner (*No. 1314*). Duplicate at K.

This seems closest to the varieties *hirsuta* and *Eliasii*, but differs in the toothing of the leaves and the indument.

301w. *Passiflora foetida* var. *Glaziovii* Killip, var. nov.

Caulis tenuissimus, glaber; folia subhastata, dense ciliata, supra adpresso-hirsuta, subtus glabra; bracteae bipinnatisectae; ovarium glabrum.

Stem very slender, glabrous; leaves subhastate, densely ciliate and with a few stiffer, gland-tipped hairs at the margin, appressed-hirsute above; bracts about 1 cm. long, bipinnatifid, the segments not closely interwoven; ovary glabrous.

Type in the herbarium of the Universitetets Botaniske Museum, Copenhagen, collected at Nova Friburgo, State of Rio de Janeiro, Brazil, by A. Glaziov (*No. 4818*). Duplicate at B.

DISTRIBUTION: Known only from the type material.

301x. *Passiflora foetida* var. *Eliasii* Killip, var. nov.

Caulis pilis brunnescentibus brevibus hirsutulus, raro glaber; folia subhastata, subintegerrima, supra adpresso-hirsutula et velutina, infra dense brunneo-velutina; bractearum segmenta non conferte intertextis; ovarium glabrum.

Stem sparingly hirsutulous with short, brownish hairs, rarely glabrous; leaves subhastate (middle lobe: lateral lobes, 3.5:1; middle lobe ovate or ovate-lanceolate, 2.5 to 3 cm. long, abruptly acute, the lateral lobes much reduced, suborbicular), subentire, appressed-hirsute and velutinous above, densely brownish-velutinous beneath, the hairs very short; bracts about 2 cm. long, bipinnatisect or tripinnatisect, the segments not closely interwoven; flowers about 2.5 cm. wide; styles long-pilose; ovary glabrous; fruit about 1.5 cm. in diameter, yellowish.

Type in the United States National Herbarium, No. 1,344,964, collected at Barranquilla, Department of Atlántico, Colombia, January, 1928, by Brother Elias (No. 467).

DISTRIBUTION: Northern coast of Colombia.

COLOMBIA: Río Magdalena, *Peale* (Ph).—Atlántico: Puerto Colombia, *Killip & Smith* 21078 (N); *Pennell* 12029 (G, N). Barranquilla, *Elias* 984 (N), 986, in part (N); *Dugand* 1113 (N).—Bolívar: Cartagena, *Heriberto* 64 (N), 197 (N, Y); *Billberg* 120 (B, N, S); *Watts* (K). Turbaco, *Holton* 702 (Y). Río Magdalena, *Esposito* 39 (K).

In typical material the basal leaf lobes are much reduced, but in other specimens they are more developed, the variety thus approaching typical *P. foetida*.

301y. *Passiflora foetida* var. *hirsuta* Mast. Trans. Linn. Soc. 27: 631. 1871.

Passiflora Baraquiniana Lemaire, Illust. Hort. 8: pl. 276. 1861.

Stem softly pilosulous with spreading, yellowish hairs 1 to 1.5 mm. long; petioles densely glandular-ciliate; leaves 7 to 12 cm. long, 6 to 9 cm. wide, 3-lobed (middle lobe: lateral lobes, 5:1 or 2; middle lobe triangular-ovate, abruptly acuminate, the lateral lobes sub-orbicular, often much reduced), appressed-pilose on both surfaces; bracts up to 3 cm. long, bipinnatisect, the segments not closely interwoven; flowers about 2.5 cm. wide; ovary glabrous; fruit subglobose, about 2.5 cm. in diameter, greenish yellow, edible.

TYPE LOCALITY: "Territoire des Amazones" (type collected by Baraquin).

ILLUSTRATION: Lemaire, Illust. Hort. 8: pl. 276.

DISTRIBUTION: Amazonian basin of Brazil and Peru.

PERU: San Martín: Tarapoto, *L. Williams* 5413 (N).—Loreto: Contamana, *Killip & Smith* 26870 (N, Y). Iquitos, *Killip & Smith* 27093 (N, Y); *Klug* 959 (F, N, Y), 1483 (F, N, Y). Yurimaguas, *Killip & Smith* 27828 (F, G, N, Y); *L. Williams* 5069 (F, N), 7847 (N); *Poeppig* 2173 (Bo, V). Lower Río Huallaga, *L. Williams* 3962 (N), 3977 (N), 5112 (N). Río Ucayali, *Tessmann* 3091 (B, Gen, S), 5464 (Gen).

In the shape of the leaves this variety resembles var. *hispida*, but the indument of the stem is softer, the petioles are glandular-ciliate, and the segments of the bracts are not closely interwoven.

At the place of publication of this varietal name Masters cited only *P. Baraquiniana* as a synonym. In the *Flora Brasiliensis*, which appeared the following year, he listed another synonym, *P. hirsuta* L. Amoen. Acad. 1: 227. This was an inadvertent error, as the Linnean name was at the same time listed correctly in the synonymy of *P. suberosa*. The specimens cited as var. *hirsuta* by Masters in the *Flora Brasiliensis* belong to several varieties.

301z. *Passiflora foetida* var. *galapagensis* Killip, var. nov.

Caulis dense rufo-hirsutulus; folia trilobata, lobo medio ovato-lanceolato, lobis lateralibus rotundatis vel abrupte acutis, conferte glanduloso-ciliata, hirsutula vel hirsuto-tomentulosa; bracteae bipinnatisectae vel tripinnatisectae, glabrae, segmentis non conferte intertextis; ovarium glabrum.

Stem densely and softly rufo-hirsutulous, the hairs averaging not more than 1 mm. long; leaves 3-lobed (middle lobe ovate-lanceolate, the lateral lobes usually well developed, rounded or abruptly acute), closely glandular-ciliate, thin-membranous, hirsutulous or hirsute-tomentulous on both surfaces; bracts bipinnatisect or tripinnatisect, glabrous, the segments not closely interwoven; flowers about 4 cm. wide, white, the outermost corona rays purple-banded proximally; ovary glabrous; fruit globose, 2 to 2.5 cm. in diameter, yellow, glabrous.

Type in the herbarium of the California Academy of Sciences, No. 209,099, collected at Post Office Bay, Charles Island, Galapagos Islands, April 23, 1932, by John Thomas Howell (No. 8833). Duplicate at N.

DISTRIBUTION: Known only from the Galapagos Islands.

ECUADOR: Colón: Galapagos Islands: *Anderson 161* (Cop, S, V). Indefatigable Island, *Stewart 2073* (CAS, G, N); *Howell 9045* (CAS, N); *Schimpff 22* (CAS, Gen, Ut). Charles Island, *Stewart 2071* (CAS, G); *Lee* in 1888 (N); *Agassiz* in 1891 (N). Albemarle Island, *Stewart 2068* (CAS), *2069* (CAS, G). Chatham Island, *Stewart 2072* (CAS, G, N); *Snodgrass & Heller 496* (N); *Agassiz* in 1891 (N). Floreana Island, *Rorud 214* (G). Barrington Island, *Stewart 2067* (CAS).

This is very close to var. *hirsuta*, and I am separating the two mainly because of their different geographical distribution. In the type of the Galapagan variety the indument of the leaves is much shorter and softer than in the Amazonian plant.

301aa. *Passiflora foetida* var. **Maxoni** Killip, Carnegie Inst. Wash. Publ. 461: 326. 1936.

Stem softly pilosulous with hairs up to 1 mm. long; leaves hastate or subhastate (midnerve: lateral nerves, 5:3-4; middle lobe oblong-lanceolate, acuminate, the lateral lobes ovate-lanceolate, usually bilobate, acute or subacute), crenulate, pilosulous; bracts 3 to 3.5 cm. long at post-anthesis, the ultimate segments not closely interwoven; flowers 2.5 to 3 cm. wide, pale purple; ovary glabrous; fruit 2.5-3 cm. in diameter.

TYPE LOCALITY: Lake Managua, near Managua, Nicaragua.

DISTRIBUTION: Salvador and Nicaragua.

SALVADOR: *Renson* 259 (N). Department of San Salvador, *Standley* 22608 (N), 22763 (N), 23278 (N).

NICARAGUA: Hart (*Trinidad Herb.* 5495; T). Lake Managua, near Managua, *Maxon* 7219 (N, type); *Garnier* 917 (N). Corinto, *Tonduz* in 1921 (N).

This and two other varieties in Mexico and Central America often have the basal lobes bilobate, so that the leaves appear 5-lobed. The pubescence of this variety is rather similar to that of var. *gossypifolia*, and the large, purplish flowers are suggestive of certain other varieties in this region.

301bb. *Passiflora foetida* var. **subpalmata** Killip, Carnegie Inst. Wash. Publ. 461: 326. 1936.

Stem slender, glabrous; leaves subhastate (midnerve: lateral nerves, 5:3, the basal lobes oblong in general outline, subobtuse, usually bilobate), hirsutulous above, pilosulous beneath; bracts about 2 cm. long at anthesis, the ultimate segments not closely interwoven; ovary glabrous.

TYPE LOCALITY: Progreso, Yucatán, Mexico.

DISTRIBUTION: Known only from the State of Yucatán, Mexico.

MEXICO: Yucatán: *Gaumer* 23979 (F, N), 24251 (F, Gen, N). Progreso, *Steere* 3021 (N), 3022 (N, type).

301cc. *Passiflora foetida* var. **mayarum** Killip, Carnegie Inst. Wash. Publ. 461: 327. 1936.

Stem slender, glabrous or very sparingly pilose; leaves hastate or subhastate (midnerve: lateral nerves, 5: 2 or 2.5, the lateral lobes broadly ovate or suborbicular, rounded or rarely subacute), sub-appressed-hirtellous above, densely and softly ferruginous-pilosulous

beneath; bracts up to 4 cm. long, the segments not closely interwoven; sepals and petals cream-colored, the corona purple and white; ovary glabrous; fruit 2 to 2.5 cm. in diameter, red.

TYPE LOCALITY: Along the Belize-Sibun road, Belize District, British Honduras.

DISTRIBUTION: British Honduras.

BRITISH HONDURAS: *Gentle* 157 (N). Belize, *Gentle* 6 (N, type), 39 (N); *Lundell* 1836 (N), 3838 (N). Corozal, *Lundell* 1897 (N); *Gentle* 126 (N), 613 (Mich). Belize River, *Lundell* 3837 (N). Prospecto, *Gentle* 907 (Mich).

301dd. *Passiflora foetida* var. *salvadorensis* Killip, Carnegie Inst. Wash. Publ. 461: 327. 1936.

Stem slender, glabrous; leaves hastate (midnerve: lateral nerves, 5:1.5–2, the lobes subacute), appressed-hirsute above, hirsutulous beneath; ultimate segments of bracts not closely interwoven; flowers purple; ovary glabrous; fruit about 2.5 cm. in diameter, reddish.

TYPE LOCALITY: Nahulingo, Sonsonate, Salvador.

DISTRIBUTION: Salvador.

SALVADOR (all Department of Sonsonate): Nahulingo, 220 meters, *Standley* 22006 (G, N, type). Izalco, *Standley* 22209 (G, N, Y). Nahuizalco, *Pittier* 1966 (N).

This merges into the variety *Maxoni*.

301ee. *Passiflora foetida* var. *hibiscifolia* (Lam.) Killip, comb. nov.

Passiflora hibiscifolia Lam. Encycl. 3: 39. 1789.

(?) *Passiflora hibiscifolia* var. *glabrata* Fenzl ex Jacq. Eclog. Pl. 2: 5. 1844.

Dysosmia hibiscifolia M. Roemer, Fam. Nat. Syn. 2: 149. 1846.

Passiflora Liebmanni Mast. in Mart. Fl. Bras. 13, pt. 1: 547. 1872.

Plant glabrous throughout; leaves 5-lobed, 5 to 10 cm. long, 4 to 10 cm. wide (lobes oblong-lanceolate or oblanceolate, rounded or subobtusate), crenate, not ciliate, resinous-punctate beneath, subcoriaceous; bracts 2.5 to 5 cm. long, bipinnatisect or tripinnatisect, the segments not closely interwoven; fruit 3 to 4 cm. in diameter, scarlet.

TYPE LOCALITY: Probably in Central America, according to Lamarek.

DISTRIBUTION: Southern Mexico and Nicaragua.

MEXICO: *Collector*(?) (*Lamarck Herbarium*, P, type). Cultivated at Washington, D. C., from Mexican seeds, *Rose* 4014 (N).—Puebla: Venta Salada, *Liebmann* 4078 (*Passiflora* No. 41; Cop, type of *P. Liebmanni*). Tehuacán, *Liebmann* 4079 (*Passiflora* No. 40; Cop, N).—Guerrero: Acapulco, *Palmer* 409 (G), 409a (F, N).—Oaxaca: San Antonio, *Pringle* 4847 (B, BM, Bo, Brux, Cal, F, G, Gen, K, Minn, N, P, Ph, S, V, Y); *Conzatti* 211 (F); *C. L. Smith* 245 (N). Tomellín, *Rose & Hough* 4676 (N); *Rose, Painter & Rose* 10056 (N). Santa Catarina, *Rusby* 48 (N, Y). Huilotepec, *Nelson* 2589 (G, N). Cuicatlán, *Nelson* 1632 (G, N); *Conzatti* 184 (G); *L. C. Smith* 189 (G). Tehuantepec, *Orcutt* 5272 (N); *Seler* 1665 (B), 1670 (B).

NICARAGUA: Granada, *Baker* 74 (Cal, G, Mich, Mo, Po, Roch, Y), 843 (Cal, G, N).

Writers have failed to associate Lamarck's name with the common Oaxaca plant, usually attempting to apply it to West Indian varieties of *P. foetida* with a conspicuous indument. To the readily recognized plant of southern Mexico Masters gave the name *P. Liebmanni*.

301ff. *Passiflora foetida* var. *ciliata* (Dryand.) Mast. Trans. Linn. Soc. 27: 631. 1871; in Mart. Fl. Bras. 13, pt. 1: 583. 1872.

Passiflora ciliata Dryand. in Ait. Hort. Kew. 3: 310. 1789.

Dysosmia ciliata M. Roemer, Fam. Nat. Syn. 2: 149. 1846.

Plant glabrous throughout except for a few gland-tipped cilia on the petioles and at the leaf margins; leaves subhastate (midnerve: lateral nerves, 5:2–3; lobes narrowly oblanceolate or narrowly oblong-lanceolate, the length usually much exceeding the width, acute or acuminate), subtruncate or cordate at base, finely denticulate; bracts bipinnatisect or tripinnatisect, 3 to 4 cm. long, the segments not closely interwoven; flowers 4 to 5 cm. wide, light blue or pale pink: fruit when ripe 2.5 to 3.5 cm. in diameter, scarlet or bright red.

TYPE LOCALITY: Jamaica, the type a plant cultivated in England.

ILLUSTRATIONS: Bot. Mag. 8: *pl.* 288; Lawrance, Passion Fl. *pl.* 12; (?)Jacq. Eclog. Pl. 2: *pl.* 122.

DISTRIBUTION: Southern Mexico and northern Guatemala; Jamaica.

MEXICO: Campeche: Campeche, *Seler* 4947 (B). El Carmen, *Mell* 2016 (N).—Yucatán: *Gaumer* 127 (B, K), 466 (B, Bo, F, N, V, Y), 630 (F, S). Mérida, *Schott* 983 (BM). Progreso, *Gaumer*

23355 (F, Gen, N, Y). Silám, Gaumer 1888 (N). La Vega, Goldman 631 (N). Chichen Itzá, Steere 1089 (N), 1445 (N). Chichankanab, Gaumer 1783 (F, J, N, S, V). Calcehtok, Stone 270 (Ph).

GUATEMALA: Petén: San Clemente, Bartlett 12832 (Mich).

JAMAICA: *McFadyen* (K); *Purdie* (K); *Ex Hort. Kew.* (BM, type). Meylersfield, Westmoreland, *Harris* 11816 (F, J, N, Y); *Maxon & Killip* 1423 (cultivated at Hope Gardens; F, G, N, Y). Bullstrode, *E. G. Britton* 2880 (J, Y).

301gg. *Passiflora foetida* var. *nicaraguensis* Killip, Carnegie Inst. Wash. Publ. 461: 328. 1936.

Passiflora hastata var. *nicaraguensis* Killip ex Standl. Field Mus. Bot. 10: 293. 1931.

Plant glabrous throughout; leaves hastate (midnerve: lateral nerves, 5:2–2.5; lobes rounded to subacute), ciliate; bracts 3 to 4 cm. long at time of fruit, the segments not closely interwoven; flowers purplish white; fruit 2.5 to 3 cm. in diameter, scarlet(?).

TYPE LOCALITY: La Fragua, Honduras.

DISTRIBUTION: Southern Mexico to Nicaragua.

MEXICO: *Sessé & Mociño* 4470, in part (Ma).—Oaxaca: Papaioapám, *Archer* 3977 (N).—Tabasco: Río Grijalva, *Rovirosa* 560 (N, Ph, Y).—Yucatán: Ticul, *Stone* 286 (Ph).

GUATEMALA: Retaluleu: Champerico, *Kellerman* 4969 (N).—Escuintla: Escuintla, *J. D. Smith* 2016 (G, K, N).

BRITISH HONDURAS: Corozal, *Gentle* 379 (Mich). Belize, *Lundell* 3933 (N).

HONDURAS: La Fragua, Atlántida, *Standley* 52665 (N, type). Tela, Atlántida, *Yuncker* 4668 (Mich).

NICARAGUA: Granada, *Lévy* 120 (Cop, Gen, K, P).

Passiflora foetida var. *nicaraguensis* merges into several other varieties, e.g., *Maxoni*, *mayarum*, and *ciliata*. The plant was first described in an account of the *Flora of the Lancetilla Valley, Honduras*, the description being derived from a specimen from that region, to which I had given the name *P. hastata* var. *nicaraguensis*. At the time this sheet was submitted to me I was inclined to separate several species from *P. foetida*, and had at hand a number of Nicaraguan specimens which I considered to belong to the same variety as the Lancetilla sheet. In the present treatment, in which *P. foetida* is taken in a broader sense, but its varieties are separated on finer lines,

most of the Nicaraguan specimens fall into other varieties. To avoid perpetual confusion, I have selected the specimen from La Fragua, Honduras, as the type, this locality being the only one cited at the place of original publication.

301hh. *Passiflora foetida* var. *subintegra* Killip, Carnegie Inst. Wash. Publ. 461: 328. 1936.

Plant glabrous throughout; stem black, wiry; leaves narrowly lanceolate or obscurely hastate, 4 to 6 cm. long, 1 to 2 cm. wide, acuminate, undulate; bracts about 2 cm. long at anthesis, ultimate segments not closely interwoven; flowers dark rose; fruit scarlet.

TYPE LOCALITY: All Pines, British Honduras.

DISTRIBUTION: Known only from the type locality.

BRITISH HONDURAS: All Pines, *Schipp* 648 (Gen, Mich, type).

301ii. *Passiflora foetida* var. *orinocensis* Killip in Bailey, Gent. Herb. 2: 205. f. 107. 1930.

Plant glabrous throughout; leaves averaging 6 cm. long, 4.5 cm. wide, hastate (midnerve: lateral nerves, 5:1.5–2; middle lobe lanceolate, acuminate, the lateral lobes suborbicular), cordate, sparingly glandular-punctate beneath, minutely denticulate; bracts 2.5 to 3 cm. long, viscous, bipinnatisect or tripinnatisect, covered throughout with minute, sessile glands, the segments not closely interwoven; fruit about 3 cm. in diameter, red.

TYPE LOCALITY: Isla Degrero, near Ciudad Bolívar, Venezuela.

ILLUSTRATION: Bailey, Gent. Herb. 2: 205. f. 107. 1930.

DISTRIBUTION: Lower Orinoco River, Venezuela.

VENEZUELA: Lower Río Orinoco, *Chaffanjon* 233 (P); *Rusby & Squires* 179 (K, Minn, Y).—Bolívar: Ciudad Bolívar, *Bailey & Bailey* 1773 (N, type, Y).

301jj. *Passiflora foetida* var. *riparia* (C. Wright) Killip, comb. nov.

Passiflora ciliata var. *riparia* C. Wright ex Griseb. Cat. Pl. Cub. 113. 1866.

Plant glabrous throughout; leaves averaging 7 cm. long and wide, 3-lobed (midnerve: lateral nerves, 5:3–3.5, the middle lobe averaging 4 cm. wide, abruptly acute or acuminate, lateral lobes suborbicular), remotely denticulate or subentire, cordate, sparingly ciliate; bracts 4 to 5 cm. long, bipinnatisect or tripinnatisect, the segments

elongate, not closely interwoven; flowers up to 6 cm. wide, purple; fruit globose, 3 to 4 cm. in diameter, red.

TYPE LOCALITY: Cuba.

DISTRIBUTION: Southern Florida, Bahamas, Cuba, and Hispaniola.

FLORIDA: Fruitland Park, *R. N. Jones* in 1920 (N).

BAHAMAS: Fortune Island, *Bartsch* in 1930 (N).

CUBA: *Wright 2602* (B, type, BM, Bo, HA, Gen, K, N). Río Yateras, 600 meters, *Eggers 5305* (B, J, N); *De la Sagra* (V).—Habana: Santiago de Las Vegas, cultivated(?), *Abarca 332* (HV).—Oriente: San Luis, *Pollard & Palmer 351* (F, G, Minn, Mo, N, Ph, Y).

HAITI: *Nash 598* (Y). St. Michel de l'Atalaye, *Leonard 8511* (N). Etang, *Leonard 3569* (B, N, Y). Port au Prince, *Leonard 2772* (B, N, Y). Port à Piment, *Ekman H425* (S). Gonaïves, *Jacquemont* in 1834 (P). Tortue Island, *Leonard & Leonard 11233* (K, N), *11603* (N), *14018* (N), *15359* (N); *Ekman H4289* (N).

DOMINICAN REPUBLIC: *Bertero* (Gen); *Poiteau* in 1802 (Gen). Samaná, *Miller 1085* (N). Villa Riva, *Abbott 548* (B, N, Y). Hania, *Faris 318* (N). La Romana, *Ekman H12096* (N).

PUERTO RICO: *Leyte, Wengel 1308* (F).

301kk. *Passiflora foetida* var. *quinqueloba* (Griseb.) Killip, comb. nov.

Passiflora ciliata var. *quinqueloba* Griseb. Cat. Pl. Cub. 113. 1866.

Passiflora foetida var. *ciliata* f. *quinqueloba* Mast. Trans. Linn. Soc. 27: 631. 1871; in Mart. Fl. Bras. 13, pt. 1: 583. 1872.

Plant essentially glabrous; leaves small for the group, 5-lobed (middle lobe narrowly oblong-lanceolate, rounded or acute, the basal lobes sometimes reduced), cordate, remotely denticulate, bearing a few hairs on the lower surface, thin-membranous; bracts small, 1 to 2 cm. long at anthesis, up to 2.5 cm. long at postanthesis, bipinnatisect, all the divisions very slender, none closely interwoven; flowers up to 4 cm. wide; fruit about 2 cm. in diameter, scarlet.

TYPE LOCALITY: Cuba.

DISTRIBUTION: Central and eastern Cuba.

CUBA: *Wright 2601* (B, type, Bo, Gen, HA, K, N, P, S); *De la Sagra* (N, P).—Santa Clara: *León 370* (Y). San Marcos, *León 9194* (HS). Manajanabo, *León 5294* (HS). La Magdalena, *Baker 4942* (HV). Santo Domingo, *Ekman 13873* (S, Y). Cienfuegos, *Jack 5335* (N, Y), *7144* (Y).—Camagüey: Cayo Coco, *Shafer 2714* (N,

P, Y). Cayo Sabinal, *Shafer* 850 (Y), 1101 (F, N, Y). Caobilla, *Acuña* 8882 (HV).—Oriente: *Ekman* 7440 (S); *Shafer* 3081 (Y), 3618 (Y). Sierra de Nipe, *Ekman* 2230 (S), 6139 (S), 9929 (S), 9969 (S). Cupey, *Ekman* 6319 (S). Gamboa, *Ekman* 14961 (B, Gen, S).

This and the following variety differ from others of this relationship by much smaller, more delicate bracts.

301ll. *Passiflora foetida* var. *polyadena* (Griseb.) Killip, comb. nov.

Passiflora ciliata var. *polyadena* Griseb. Cat. Pl. Cub. 285. 1866.
Not *P. polyaden* Vell.

Passiflora pseudociliata Britton, Bull. Torrey Club 44: 19. 1917.

Plant glabrous; leaves 3-lobed (midnerve: lateral nerves, 3:2; lobes oblong-lanceolate, obtuse or subacute), subentire or remotely ciliate-denticulate, cordate, membranous; bracts bipinnatisect, 1 to 2 cm. long, barely half as long as the fruit; flowers 3 to 4 cm. wide, white, pink-tinged, the corona filaments white and purple; fruit about 2 cm. in diameter, scarlet.

TYPE LOCALITY: Cuba.

DISTRIBUTION: Throughout Cuba.

CUBA: *Wright* in 1865 (B, type, HA, N, Y); *Sauvaille* 893 (HA); *De la Sagra* 197 (K); *Pilsbry* (Ph).—Pinar del Río: *Shafer* 11858 (Y).—Habana: *León* 4125 (HS, N, Y); *Ekman* 14074 (B, S), 16445 (B, S).—Matanzas: *León* 13135 (HS, Y); *Killip* 13913 (N).—Santa Clara: *León* 5361 (Y), 5369 (Y); *León & Roca* 7941 (Y), 8172 (Y); *Shafer* 12170 (Y); *Britton & Wilson* 5698 (Y); *Britton, Britton & Wilson* 5511 (Y), 6086 (Y); *Britton, Earle & Wilson* 5886 (B, Y); *Luna* 370 (HS); *Otto* 142 (B); *Combs* 44 (F, K, Y); *L. B. Smith et al.* 3146 (N).—Camagüey: *Britton & Wilson* 427 (HV, Y); *Britton, Britton & Shafer* 675 (Y); *Britton, Britton & Cowell* 13155 (N, P, Y, type of *P. pseudociliata*); *Britton* 2370 (Y); *Shafer* 684 (Y), 2690 (F, Y), 3340 (Y); *León & Roca* 8843 (HS, N).—Oriente: *Ekman* 9774 (S).

Subgenus XX. DYSOSMIOIDES

302. *Passiflora villosa* Vell. Fl. Flumin. 9: pl. 87. 1827 (plate only);
M. Roemer, Fam. Nat. Syn. 2: 180. 1846.

Plant densely villous-hirsute with yellowish hairs; stem terete, sulcate, purplish; stipules ovate-lanceolate, 1.5 to 2 cm. long, 0.8 to 1.2 cm. wide at base, lacerate-dentate, the teeth aristate, usually gland-tipped, the glands narrowly clavate; petioles up to 1.5 cm.

long; leaves broadly ovate-lanceolate, 6 to 9 cm. long, 5 to 8 cm. wide, 3-lobed (middle lobe lance-ovate, up to 4 cm. wide at base, produced, the lateral lobes rarely more than 1 cm. long, all lobes aristulate), shallowly cordate at base, glandular-ciliate, membranous, densely appressed-villous on both surfaces; peduncles solitary, 1 cm. long or less, villous; bracts ovate-lanceolate, 3 to 4 cm. long, 1 to 2.5 cm. wide, deeply lacerate-dentate, the teeth aristate, gland-tipped, the glands narrowly clavate; calyx tube obconic; sepals oblong, about 1.5 cm. long and 8 mm. wide, white, villous without, aristate dorsally just below apex; petals oblong, slightly shorter than the sepals, membranous, white; corona filaments in 3 series, those of the 2 outer series liguliform, about 1 cm. long, 1-nerved, white, banded with red-purple, the inner ones filiform, about 2 mm. long; operculum membranous, erect, short-fimbriate at margin; limen cupuliform; ovary subglobose, glabrous; fruit globose, glabrous, yellowish, the pericarp coriaceous; seeds oblong, retuse, apiculate, reticulate.

TYPE LOCALITY: Brazil.

ILLUSTRATIONS: Vell. Fl. Flumin. 9: *pl.* 87; Mart. Fl. Bras. 13, pt. 1: *pl.* 110, *f.* 2; Engl. & Prantl, Pflanzenfam. ed. 2, 21: 478. *f.* 19.

DISTRIBUTION: Eastern Brazil, from Minas Geraes to Santa Catharina.

BRAZIL: *Sello* 1115 (B), 5079 (B), 5769 (B).—Minas Geraes: *Ule* 2570 (N). Ouro Preto, *Schwacke* 9385 (B). Serra de Piedade, *Warming* 1168 (Cop). Lagôa Santa, *Warming* 1174 (Cop).—Rio de Janeiro: *Widgren* 575 (S). Barreto, *Glaziou* 18255 (Cop, K, P).—São Paulo: Itapetiningo, *Löfgren* 348 (Cop). São Paulo, *Burchell* 3989 (K), 4143 (Y), 4316 (G, K). Santa Anna, *Brade* 5524 (S). Butantan, *Hoehne* 78 (B).—Paraná: Jaguarihyva, *Dusén* 15111 (Gen, Ph, S), in 1915 (BM, K, N, S). Tibagy, *Dusén* 7583 (S). Capão Grande, *Dusén* in 1904 (S). Villa Velha, *Jönssen* 1267a (B, Gen, S). Itataré, *Dusén* 11325 (S). Serrinha, *Dusén* 2679 (S), in 1911 (S).

Of the five species here placed in the subgenus *Dysosmioides* two, *P. villosa* and *P. Vellozii*, were classed by Masters with *P. foetida* in *Dysosmia*, and two, *P. hypoglauca* and *P. campanulata*, were described as *Granadilla*. Clearly these four, together with one here proposed as new, are closely related, and appear to constitute a small group intermediate between *Dysosmia* and *Granadilla*. The stipules and bracts, though cleft more deeply than in species of *Granadilla*,

are by no means the filiform-segmented organs of *Dysosmia*. The corona is definitely 3-ranked, and the operculum is filamentose, at least part way. In *Dysosmia* the corona is about 5-ranked, and the operculum is merely denticulate.

Passiflora villosa is a striking plant, with an indument denser than in any of the forms of *P. foetida*. Masters describes the ovary as being strongly villous, but in all the specimens I have seen it is glabrous. With one exception, the specimens cited above show little variation; in *Ule* 2570 the indument is much scantier, the leaves smaller, and both the bracts and the leaves less noticeably toothed.

303. *Passiflora Vellozii* Gardn. Lond. Journ. Bot. 4: 103. 1845, excluding synonym.

Cieca Vellozii M. Roemer, Fam. Nat. Syn. 2: 142. 1846.

Stem subterete, sulcate, green or occasionally dark purple, densely pilose with long, yellowish hairs; stipules semi-ovate, 3 to 6 mm. long, 1.5 to 3 mm. wide, lacerate-dentate, the teeth aristate; petioles 0.5 to 2.5 cm. long, pilose, often some of the hairs thicker than the others and gland-tipped; leaves 3 to 9 cm. long and wide, 3-lobed (lobes broadly ovate-lanceolate, acute or obtusish, apiculate, the middle lobe 2 or 3 times larger than the lateral lobes), shallowly cordate at base, 3-5-nerved, ciliate at margin with soft, yellowish hairs, minutely denticulate toward base (teeth often gland-tipped), membranous, appressed-pilose on both faces; peduncles 0.5 to 2 cm. long, slender; bracts lanceolate or oblong-lanceolate, 0.7 to 1.5 cm. long, 0.3 to 1 cm. wide, lacerate-dentate or pinnatifid, membranous, pilose, ciliate; flowers up to 5 cm. wide; sepals oblong, about 2 cm. long and 6 mm. wide, obtuse, pilose without, dorsally awned just below apex, the awn ciliate; petals linear, about 1.5 cm. long, 0.3 cm. wide, obtuse, thin-membranous; corona filaments in 3 series, those of the 2 outer series narrowly liguliform, about 2 cm. long, with the inner clavate-filiform, 4 mm. long; operculum 5 mm. high, erect, upper half filamentose; limen membranous, surrounding base of gynophore, 3 mm. high, minutely denticulate; ovary ovoid, hirsute; fruit ovoid, about 4 cm. long, 2.5 cm. wide, sparingly hirsute; seeds cuneate, about 4 mm. long, 2 mm. wide, reticulate.

TYPE LOCALITY: Organ Mountains, Brazil.

DISTRIBUTION: Known only from the states of Minas Geraes and Rio de Janeiro, eastern Brazil.

BRAZIL: Minas Geraes: *St. Hilaire* 2239 (P). Itabira, *Weddell* 1333 (P).—Rio de Janeiro: Organ Mountains, 900 meters, *Gardner*

427 (BM, type, K); *Bailey & Bailey* 1257 (N); *Miers* 4457 (K). Cantagallo, *Peckolt* 209 (V).

Gardner described *P. Vellozii* as being without petals. Although I have made no dissection of the flowers of the type specimen, *Bailey* 1257, which corresponds excellently with it in other details, has petals present. The petals are of a very thin texture, and in bud stage, when closely appressed to the sepals, they may well have been overlooked. *Passiflora Vellozii* clearly is related to *P. villosa*, differing in the shape of the leaves and bracts, and in having a less dense indument. The description of the fruit is drawn from a specimen in the Stockholm herbarium, without data, which undoubtedly belongs to this species.

Gardner cites Velloso's plate 86 as this, but it surely is not the same as *Gardner* 427, the original of the description of *P. Vellozii* Gardn. As already noted, Velloso's plate 86 represents *P. foetida* var. *fluminensis*.

304. *Passiflora setulosa* Killip, sp. nov.

Caulis hirtellus; stipulae semi-oblongae, lacerato-dentatae; petioli 2-4-glandulosi; folia profunde trilobata, lobis angustis, serrulata, cordulata, setulosa; bracteae lanceolatae, lacerato-dentatae, ad marginem dense setulosae; coronae filamenta triseriata; operculum breviter filamentosum; ovarium glabrum.

Stem slender, wiry, hirtellous; stipules semi-oblong, 5 to 7 mm. long, 1.5 to 3 mm. wide, lacerate-dentate, glabrous; petioles about 1 cm. long, setulose, bearing 2 to 4 stipitate glands above middle; leaves 3-lobed five-sixths their length (lobes narrowly lanceolate or narrowly oblong-lanceolate, acuminate, 1 to 1.5 cm. wide, the middle lobe 4 to 6 cm. long, the lateral lobes 3.5 to 4 cm. long), cordulate, irregularly serrulate, 5-nerved (nerves yellowish), light green above, slightly paler beneath, sparingly setulose above with white hairs, setulose on the nerves beneath; peduncles about 1 cm. long (undeveloped); bracts lanceolate, 1 to 1.5 cm. long, 0.5 to 1 cm. wide, acuminate, lacerate-dentate, densely setulose at margin, otherwise essentially glabrous; calyx tube campanulate; sepals oblong-lanceolate, obtuse, dorsally minutely awned; petals linear-lanceolate; corona filaments in 3 series, those of the 2 outer series about as long as the petals, with the inner ones much shorter; operculum short-filamentose; ovary glabrous.

Type in the Naturhistoriska Riksmuseet, Stockholm, collected at Jaguarihyva, Paraná, Brazil, April, 1915, by P. Dusén (*No.* 16964).

Other collections by Dusén at the same locality are Nos. 14119 (S), 17464 (S).

This differs from *P. Vellozii* in having much more deeply lobed leaves, the lobes being narrowly lanceolate or narrowly oblong-lanceolate, whereas in its relative they are broadly ovate-lanceolate. The margin of the leaves is irregularly serrulate, in *P. Vellozii* essentially entire. The ovary is glabrous, not densely hirsute as in *P. Vellozii*.

305. *Passiflora hypoglauca* Harms, Repert. Sp. Nov. 18: 296. 1922.

Stem slender, terete, brownish-villosulous-tomentose; stipules semi-ovate, 1 cm. long, 0.5 cm. wide, aristate, dentate or denticulate, villosulous at margin and on nerves beneath; petioles 1 to 2 cm. long, minutely 2-4-glandular, the glands stipitate, embedded in the tomentum; leaves lanceolate or oblong-lanceolate, 8 to 11 cm. long, 2.5 to 4 cm. wide, acute or obtusish, mucronulate at apex, rounded at base, subtrinerved (midnerve prominent, the lateral basal nerves and the 5 or 6 pairs of secondary nerves less so), appressed-pilose with rather short hairs above, densely villosulous beneath, especially on nerves, green above, glaucous beneath; peduncles 2 to 3 cm. long, slender; bracts lanceolate, 1.5 to 2 cm. long, 6 to 8 mm. wide, gradually narrowing to the acute apex, pinna-tifid-laciniate, villosulous, the nerves and veins dark beneath; calyx tube broadly campanulate; sepals lanceolate, about 2 cm. long, aristate, pilosulous without; petals slightly shorter than the sepals, hyaline; corona filamentose, 3-ranked, the outermost row of filaments about 6 mm. long, the middle row 3 mm., the innermost 1 mm.; operculum membranous in lower half, filamentose above, the filaments about 1.5 mm. long, erect; limen membranous, cupuliform; ovary brown-hirsute-villous.

TYPE LOCALITY: Serra de Ouro Preto, Brazil.

DISTRIBUTION: Known only from the State of Minas Geraes, eastern Brazil.

BRAZIL: Minas Geraes: Serra de Ouro Preto, *Ule* 2569 (B, type). Serra da Piedade, *Warming* 1169 (Cop, N).

Allied to *P. campanulata*, this plant differs in having the leaves entire and the stipules more deeply toothed. Also, the pubescence is much denser.

306. *Passiflora campanulata* Mast. in Mart. Fl. Bras. 13, pt. 1: 615. 1872.

Passiflora Bolstadii Dusén, Archiv. Mus. Nac. Rio de Janeiro 13: 50. 1905; Arkiv Bot. 8, No. 7: 5. 1909.

Stem slender, terete, hirsutulous; stipules semi-ovate, about 15 mm. long, 5 mm. wide, cuspidate-acuminate, denticulate especially toward base, subrevolute, reticulate-veined (veins impressed on upper surface), sparingly hirsutulous or glabrescent above, sparingly hirsutulous on veins beneath; petioles up to 3 cm. long, bearing 2 to 4 inconspicuous, stipitate glands near middle; leaves 5 to 12 cm. along midnerve, 4 to 9 cm. along lateral nerves, 6 to 12 cm. wide between apices of lateral lobes, 3-lobed to or beyond middle (lobes lanceolate or oblong-lanceolate, acute or acuminate, minutely mucronulate), rounded or subcordate at base, entire, or slightly serrulate at base, 5-nerved, reticulate-veined (nerves and veins impressed on upper surface, blackish on under surface), subcoriaceous, dark green above, grayish glaucous beneath, hirtellous on nerves and veins and at margin, or glabrous above; peduncles solitary, up to 3 cm. long, slender; bracts lanceolate or linear-lanceolate, 1.5 to 2 cm. long, about 1 cm. wide, acuminate, dentate or serrate in lower half, membranous, hirtellous at margin and on nerves and veins beneath; flowers 5 to 6 cm. wide; sepals oblong-lanceolate, about 2.5 cm. long and 8 mm. wide, obtuse, 5-nerved, the nerves blackish and hirsutulous on outside, the middle nerve terminating in an awn about 3 mm. long; petals oblong-lanceolate, subequal to the sepals, obtuse; corona in 3 series, the 2 outer rows of filaments 1.5 to 2.5 cm. long, those of the third series about 4 mm. long, capitellate; operculum membranous, filamentose, the filaments about 4 mm. long; limen cupuliform, closely surrounding base of gynophore; ovary subglobose, brownish-hirsute-villous.

TYPE LOCALITY: Organ Mountains, Rio de Janeiro, Brazil.

ILLUSTRATION: Arkiv Bot. 8, No. 7: 7.

DISTRIBUTION: Southeastern Brazil.

BRAZIL: Minas Geraes: Serra de Itatiaia, 2,100 meters, *Dusén* in 1902 (S, type collection of *P. Bolstadii*?).—Rio de Janeiro: Organ Mountains, *Lobb* (K, type).—São Paulo: *Puiggari* (P).—Paraná: Monte Alegre, *Dusén* 14078 (S). Ypiranga, *Dusén* 4237a (S).—Santa Catharina: *Ule* 207 (B).

The very dark nerves and veins are conspicuous on the under side of the leaves and bracts of this species. Though originally placed

by Masters in *Granadilla*, its true relationship seems to be with *P. villosa* and *P. Vellozii*.

Passiflora Bolstadii is scarcely distinct from *P. campanulata*. Dusén points out that in *P. Bolstadii* the leaves are glabrous except for hairs at the margin and on the nerves, their lobes are entire, the stipules are shorter, and the bracts are persistent, whereas in *P. campanulata*, with which he compares it, the leaves are villous, the lobes serrulate, and the bracts deciduous.

Subgenus XXI. POLYANTHEA

307. *Passiflora cirrhiflora* Juss. Ann. Mus. Hist. Nat. 6: 115. *pl.* 41, f. 2. 1805.

Passiflora septenata DC. Prodr. 3: 323. 1828.

Decaloba cirrhiflora M. Roemer, Fam. Nat. Syn. 2: 164. 1846.

Passiflora Jenmani Mast. in Hook. Icon. Pl. 23: *pl.* 2270. 1893.

Stem terete, glabrous or puberulent; stipules setaceous; petioles up to 10 cm. long, biglandular about 1 cm. above base, the glands sessile, often scarcely more than a scar; leaves pedately 5-7-foliolate, the leaflets oblong, 5 to 8 cm. long, 3 to 4 cm. wide, acute or acuminate, and long-aristate at apex, narrowed at base to the petiolule, aristate-bidentate near base, membranous, glabrous throughout or finely puberulent beneath; peduncles solitary, stout, 1 to 4 cm. long, 2-flowered at apex, terminating in a stout tendril, the pedicels 2 to 5 cm. long; bractlets borne at base of flower, linear-subulate, about 1 cm. long, biglandular at base; flowers reddish purple, 6 to 8 cm. wide; calyx tube broadly campanulate, 5 to 10 mm. long; sepals oblong, about 3 cm. long, 7 to 8 mm. wide, obtuse, fleshy, puberulent without; petals linear-oblong, about 2.5 cm. long, 6 to 7 mm. wide, thin, many-veined; corona filaments in 3 series, the outermost liguliform, about 3 cm. long, crispate in upper half, verrucose or fimbriate along the margin, white at base, yellow at middle, tipped with dark red, those of the 2 inner series narrowly linear, 1 cm. long, capitate; operculum membranous, closely plicate, fimbriate; limen tubular, 6 to 8 mm. high, closely surrounding base of gynophore, 5-lobed; ovary ovoid, trigonous, truncate, densely tomentellous; styles thick, 2 mm. long, projecting at the top of the angles of the ovary; stigmas orbicular, 5 mm. in diameter; fruit globose, the pericarp coriaceous; seeds broadly obovate, about 7 mm. long and 4.5 mm. wide, transversely 5-6-sulcate.

TYPE LOCALITY: French Guiana.

ILLUSTRATIONS: Ann. Mus. Hist. Nat. 6: pl. 41, f. 2; Hook. Icon. Pl. 23: pl. 2270.

DISTRIBUTION: Guianas.

FRENCH GUIANA: *Collector*(?) (Gen, P, type of *P. septenata*); *Richard* (Gen, P, type).

SURINAM: Upper Saramacca River, near Janbasigado, *Pulle* 200 (Ut).

BRITISH GUIANA: Mazaruni River, *Jenman* 5797 (BG, type collection of *P. Jenmani*), 6512 (Y); *Waby* in 1905 (B). Potaro, *Jenman* 7511 (BG). Yarikita, *Hitchcock* 17602 (G, N, Y). Waini River, *De la Cruz* 3621 (Y).

The systematic position of this unique species is uncertain. Because of the plicate operculum it has usually been placed in *Plectostemma*. The truncate ovary, with the styles projecting from the angles at its top, and the verrucose outer corona filaments indicate a closer relationship with *Astrophea*. The stigmas are much larger than in any other species of *Passiflora*.

This should be considered the type species of De Candolle's section *Polyanthea*; it is the first one cited and, moreover, the description of the section applies best to it. Two other American species, *P. holosericea* and *P. sexflora*, placed in the section by De Candolle, and *P. multiflora*, added to it by Masters, have little in common with *P. cirrhiflora*, and should be eliminated from *Polyanthea*.

Subgenus XXII. ASTROPHEA

Section 1. Dolichostemma

308. *Passiflora Haughtii* Killip, sp. nov.

Frutex scandens, ecirrhat, caule rufo-hirsutulo; folia oblanceolata, acuminata, ad basin angustata, penninervia, integerrima, membranacea, supra glabra, subtus dense hirsutula; pedunculi semel dichotomi, bracteis subulatis; calycis tubus campanulatus, sepalis petalisque lineari-oblongis; corona 5-seriata, filamentis extimis dolabriformibus, alteris brevioribus, ligulatis vel filiformibus; operculum longe tubulosum, exsertum, erosum; ovarium ovoideum, truncatum, dense hirsuto-tomentosum.

A large liana but apparently without tendrils, the stem densely rufo-hirsutulous; stipules linear-lanceolate, about 2.5 mm. long, soon deciduous; petioles 1 to 1.5 cm. long, stout, eglandular; leaves oblanceolate, 16 to 30 cm. long, 6 to 12 cm. wide, sharply acuminate,

narrowed at the base, entire, penninerved (nerves about 12 to 14 to a side, the midnerve biglandular with scarlike glands close to its base), membranous, glabrous above, light yellowish green beneath, hirsutulous beneath, especially on nerves and veins; peduncles 2.5 to 3.5 cm. long, once dichotomous, the common peduncle and the branches subequal, densely hirsutulous; bracts subulate, 1.5 to 2 mm. long, soon deciduous; calyx tube campanulate, about 1 cm. long and 1 cm. in diameter at the throat, densely hirsutulous without; sepals linear-oblong, about 3 cm. long, 9 to 10 mm. wide, hirsutulous without, greenish without, white within; petals similar to the sepals, about 2.5 cm. long and 7 mm. wide, glabrous, white; corona filaments dark brown, puberulent, in 5 series, the outermost 1.5 cm. long, laterally compressed, dolabriform, crenulate along the dilated part, subacute, the filaments of the second series ligulate, 6 to 7 mm. long, those of the other 3 series filiform, successively shorter, 4 to 1 mm. long; operculum tubular, erect, about 1 cm. high, exserted, erose, reddish; ovary ovoid, sulcate, truncate at apex, densely hirsute-tomentose.

Type in the United States National Herbarium, No. 1,662,988, collected in the Carare Valley, near Puerto Berrio, Department of Santander, Colombia, 100 to 700 meters, April 12, 1935, by Oscar Haught (No. 1635).

Astrophea is a well marked subgenus of *Passiflora*, and were certain of the subgenera of *Passiflora* given full generic rank, *Astrophea* would merit such treatment. Many of the species are true trees or shrubs, with no vestige of a climbing habit; others are suberect, with the tendrils reduced to coarse spines; still others apparently are true tendril-bearing vines.

Six fairly well defined sections may be recognized; for three of these Harms has proposed the names *Euastrophea*, *Pseudoastrophea*, and *Botryastrophea*; three new sections are now being added. There is considerable difficulty in separating the various species within these sections. Nearly all of them are quite rare, or, at least, infrequently collected, several being known only from the single type collection. Field notes are scant, and herbarium material often does not show well the form of the corona and operculum, in which often lie the distinguishing characters between the species. Further field study and the assembling of more material will doubtless modify the treatment here given, in which I have maintained most of the known species, even though at times the differentiating characters are rather insignificant.

Passiflora Haughtii and *P. Pittieri* differ from other species of *Astrophea* in having a long operculum, well exerted beyond the throat of the calyx tube, and somewhat resembling the inner rank of the corona of *P. glandulosa*. It seems best to place these two species in a new section of *Astrophea*, which may be called *Dolichostemma*. *Passiflora Haughtii*, according to the collector's notes, is a large liana; no tendrils are present on specimens collected. *Passiflora Pittieri* is described as a small tree or a shrub; the specimens bear weak tendrils. Doubtless the habit of the two is similar.

309. *Passiflora Pittieri* Mast. Bot. Gaz. 23: 246. 1897.

Small tree or shrub, with weak tendrils sometimes present at the ends of the branches; branches angulate, striate, minutely puberulent or glabrescent; stipules linear-subulate, 2 to 3 mm. long; petioles strongly grooved, puberulent, 1 to 1.5 cm. long, bearing at apex 2 inconspicuous, flattened glands; leaves oblong or obovate, 8 to 10 cm. long, 4 to 6 cm. wide, entire, abruptly acuminate at apex, cuneate at base, penninerved (lateral nerves 6 or 7 to a side), glabrous, subcoriaceous; peduncles solitary, once or twice bifurcate, the pedicels articulate above middle; bracts setaceous, 1.5 to 2 mm. long; flowers 5.5 to 6 cm. wide; calyx tube cylindric-campanulate, 8 to 10 mm. long, 6 to 7 mm. in diameter at throat; sepals oblong, 3.5 to 4 cm. long, about 8 mm. wide, obtuse, slightly fleshy; petals linear-oblong, 2.5 cm. long, about 7 mm. wide, thinner than the sepals; corona filaments in 5 series, the outermost subdolabriform, 1.5 cm. long, dilated near apex to a width of 2 mm. tapering gradually to base, those of the second series spatulate, 5 mm. long, 1 mm. wide, those of the succeeding series gradually shorter, filiform; operculum membranous, arising just below the throat of the tube, erect, about 6 mm. high, partially exerted, minutely denticulate; ovary oblong, densely ferruginous-tomentose.

TYPE LOCALITY: Santo Domingo, Golfo Dulce, Costa Rica.

DISTRIBUTION: Known only from the type locality, Pacific coastal region of Costa Rica.

COSTA RICA: Santo Domingo, Golfo Dulce, *Pittier 9894* (*J. D. Smith 7031*; K, type, N).

This is the only species of *Astrophea* found outside of South America. It, with the last preceding species, differs from other members of *Astrophea* in having a long-tubular operculum, which is borne near the throat of the calyx tube and is partially exerted beyond the throat.

Section 2. *Cirrhipes*310. *Passiflora cirrhipes* Killip, sp. nov.

Scandens, suffrutescens, ubique ovario excepto glaberrima; folia ovata vel oblongo-ovata, acuminata, membranacea, costa ad basin biglandulosa; pedunculi tenues, dichotomi, cirrhiferi; bracteae setaceae, caducae; calycis tubus cylindrico-campanulatus, sepalis lineari-oblongis, petalis spathulatis; coronae filamenta 3-seriata, extima subdolabriformia, intima filiformia, inaequalia; operculum erectum, usque ad medium fimbriatum; ovarium ovoideum, rufo-tomentosum.

Woody vine, glabrous throughout except the ovary; stipules subulate, 2 mm. long, coriaceous, soon deciduous; petioles slender, 1 to 1.5 cm. long; leaves ovate or oblong-ovate, 5 to 9 cm. long, 4 to 5.5 cm. wide, sharply acuminate, rounded at base, membranous, entire, penninerved, the lateral nerves 6 to 8 to a side, midnerve biglandular at base, the glands scarlike, oblong, about 1 mm. long, sometimes extending onto the petiole; peduncles slender, bifurcate (common portion and the branches subequal, each 1.5 to 2.5 cm. long), terminating in a reduced or a well developed tendril; bracts setaceous, about 0.5 mm. long, soon deciduous; calyx tube cylindric-campanulate, 7 to 9 mm. long, 4 to 5 mm. wide at throat, conspicuously nerved; sepals linear-oblong, about 1.5 cm. long and 4 mm. wide, subobtuse, yellowish green without, white within; petals spatulate, subequaling the sepals, obtuse, very thin, white; corona filaments in 3 series, erect, the outermost subdolabriform, 9 to 10 mm. long, laterally compressed, short-acuminate above the dilated part, yellow, the filaments of the 2 inner series filiform, unequal, 1 to 3 mm. long; operculum membranous, erect, 2.5 to 3 mm. high, fimbriate about halfway; ovary ovoid, truncate at apex, rufo-tomentose; styles slender, about 6 mm. long.

Type in the United States National Herbarium, No. 1,458,328, collected at Zepelacio, near Moyobamba, Department of San Martín, Peru, altitude 1,100 to 1,600 meters, October, 1934, by Guillermo Klug (No. 3883). Duplicates widely distributed.

This species appears to represent a monotypic section in the subgenus *Astrophea*. The dichotomous peduncles are characteristic of the section *Euastrophea*, but the species of that group are trees or shrubs, wholly devoid of tendrils, or, in the case of one or two species, cirrhiferous only in the axils of the uppermost leaves. *Passiflora cirrhipes* is a woody vine and the tendrils terminate the peduncles, in

which respect it resembles the subgenera *Tryphostemmatoides*, *Deidamioides*, and *Polyanthea*.

Section 3. *Euastrophea*

311. *Passiflora macrophylla* Spruce ex Mast. Journ. Linn. Soc. 20: 31. 1883.

Tree, 3 to 4 meters high, without tendrils; petioles up to 3.5 cm. long; leaves ovate-lanceolate or oblong-ovate, 30 to 75 cm. long, 10 to 25 cm. wide, or larger, acuminate, rounded at base, glabrous, the midrib biglandular at base; peduncles once or twice dichotomous, 8 to 10 cm. long including the branches; flowers white without, yellow within(?); calyx tube cylindric, 1.2 to 1.8 cm. long, 4 to 5 mm. in diameter; sepals oblong, 2 to 2.5 cm. long, 3 to 5 mm. wide, obtuse; petals oblong, subequal to the sepals; corona filaments in 2 series, the outer slender, liguliform, not dilated, slightly shorter than the petals, the inner falciform, flat, 1 to 3 mm. long; operculum arising near base of tube, membranous, erect, short-filamentose; gynophore slender, 3 cm. long; ovary ovoid, finely tomentulous.

TYPE LOCALITY: Near Mt. Chimborazo, Ecuador.

DISTRIBUTION: Western Ecuador; also in western Colombia.

COLOMBIA: Antioquia: *Kalbreyer* in 1879 (K). Between Medellín and Nare, *Kalbreyer 1453a* (B).

ECUADOR: Manabi: Peripa, Río Daule, 200 meters, *André 4227* (K, ?Y, excluding flowers).—Chimborazo: Base of Mt. Chimborazo, 900 meters, *Spruce 6144* (K). Río San Antonio, near Mt. Chimborazo, *Spruce 6203* (BM, type, V).

"PERU," but probably Ecuador: *Ruiz & Pavón* (Bo, K, Ma).

Passiflora macrophylla apparently is separated from the other species of this immediate relationship by the slender, liguliform threads of the outer corona. The leaves attain a greater size than in any other species of the group, except *P. gigantifolia*, and the calyx tube is more elongate than in most other species of *Euastrophea*.

At the original place of publication of this species Masters cites three specimens, *Spruce 6144* ("In Peruvia?"), *Spruce 6203*, and *André 4227*, and makes the following comment: "In the *Flora Brasiliensis* I have treated this as a form of *P. arborea*. M. André's specimens, however, having afforded ample means of examining the flowers, I am disposed to consider the present, as Spruce did, a distinct species, and to adopt the characteristic name indicated by that traveller." The locality given for *Spruce 6144* in *Flora Brasiliensis*

is Mt. Chimborazo, so that the above reference to "Peru" is merely an instance of imperfect geographic knowledge. *Spruce 6203* is in better condition, and I have selected it as the type; it also bears Spruce's proposed name *macrophylla*. *André 4227* now in the Kew Herbarium is apparently true *P. macrophylla*, but the specimen in the New York Botanical Garden consists of a single large leaf and, detached from this, a portion of a stem with an elongate peduncle bearing five large flowers. The flowers clearly belong to *P. gigantifolia*; the leaf may be either *P. gigantifolia* or *P. macrophylla*.

In later publications Masters cited as *P. macrophylla* other collections from Colombia. I have not had an opportunity of dissecting the flowers of all, but those that I have dissected indicate that most of the specimens are better referred to *P. arborea*.

312. ***Passiflora gigantifolia*** Harms, Bot. Jahrb. 18: Beibl. 46: 1. 1894.

Passiflora lorifera Mast. Journ. Linn. Soc. 20: 42. pl. 20, f. 5 (flowers). 1883, in part.

Sparingly branched shrub, 1.5 to 4 meters high, the branchlets subterete, glabrous, without tendrils; petioles 3 to 4 cm. long; leaves oblong-obovate or oblong, 50 to 90 cm. long, 22 to 35 cm. wide, acuminate, rounded or cordulate at base, penninerved (midnerve biglandular toward base), membranous, glabrous, sea-green above, glaucous beneath; peduncles once or twice dichotomous, the common peduncle up to 15 cm. long, the branched part up to 7 cm. long; calyx tube cylindric, 2 to 3 cm. long, 6 to 8 mm. in diameter; sepals oblong, 3.2 to 4 cm. long, 7 to 9 mm. wide, obtuse, subcoriaceous, green without, white within; petals subequaling the sepals, membranous, white; corona filaments orange, in about 4 series, the outermost 2 to 3 cm. long, about 1 mm. wide, enlarged at the apex to an ovate tip about 3 mm. wide, geniculate below the middle and above the middle, the succeeding series successively shorter, 8 to 1 mm. long, falciform; operculum borne just below middle of tube, erect, lacinate to below the middle; limen cupuliform; ovary white-tomentose.

TYPE LOCALITY: Near Pisagua and Balsabamba, Province of Babahoyo, Ecuador.

ILLUSTRATION: Journ. Linn. Soc. 20: pl. 20, f. 5, as to flowers.

DISTRIBUTION: Western Ecuador, up to 600 meters altitude.

ECUADOR: *Rimbach 14* (B).—Manabi: Peripa, Río Daule, *André 4227* (Y, as to flowers).—Los Ríos: Near Pisagua and Balsabamba,

200 to 600 meters, *Lehmann 4837* (B, type, K). Between Quevado and Mocache, Cantón Vinces, 60 meters, *Mexia 6630* (N).

Mrs. Mexia's beautifully prepared material consists of numerous flowers, longitudinally split when fresh so that the corona filaments and the operculum are easily studied in a dried state. In every detail these specimens agree with Harms' careful diagnosis. The flowers correspond also with those figured by Masters as *P. lorifera*. That species was based on *André 4447bis*, from Peripa, Ecuador, and the specimen from which the description was drawn was apparently a mixture of the foliage of *P. reflexiflora* and the flowers of *P. gigantifolia*. The elements on this sheet now at Kew are wholly of *P. reflexiflora*, and André's field notes apply to that species. At the same locality André collected, as No. 4227, material of a "tree passionflower." The sheet of this at Kew is *P. macrophylla*, as to both flowers and foliage, but the one at the New York Botanical Garden consists of several flowers of *P. gigantifolia* and a large leaf that may be either of these two species.

An explanation for this involved situation may be this: Masters studied unmounted material of André's. With No. 4447bis, which mostly represented *P. reflexiflora*, there was a flower of *P. gigantifolia*. Later someone, André perhaps, realized that the flower did not belong with the foliage, and transferred it to No. 4227, which was distributed to the New York Botanical Garden. Other material of No. 4227, the *P. macrophylla* element, was mounted for the Kew Herbarium.

313. *Passiflora arborea* Spreng. Syst. Veg. 3: 42. 1826.

Passiflora glauca Humb. & Bonpl. Pl. Aequinoct. 1: 76. pl. 22.

1813. Not *P. glauca* Ait. (1789).

Astrophea glauca M. Roemer, Fam. Nat. Syn. 2: 151. 1846.

Tree 6 to 10 meters high, the cortex smooth, green, the branches alternate, terete, glabrous, the younger reddish brown; petioles 2 to 3 cm. long; leaves oblong or obovate-oblong, 10 to 30 cm. long, 5 to 15 cm. wide, acute or abruptly acuminate at apex, rounded or sub-cuneate at base, penninerved (nerves prominent beneath, the mid-nerve biglandular on under surface near base, the glands spreading over the surface of blade; lateral nerves 10 to 15 to a side, at first straight, arcuate toward extremity or arcuate from origin), membranous or subcoriaceous, glabrous, rarely hirsutulous on the nerves and veins beneath, bright green above, often glaucous beneath; peduncles up to 6 cm. long, simple or 1-2-furcate, bracteolate; calyx

tube cylindric-campanulate, 7 to 10 mm. long, 4 to 5 mm. wide; sepals linear-oblong, 2 to 3 cm. long, up to 1.2 cm. wide, obtuse; petals similar and subequal to the sepals; corona filaments yellow, in 3 series, the outermost 1 to 1.5 cm. long, laterally compressed, radiate, subfalcate, dilated at or just above middle, the apex slender, filiform, the inner filaments in 2 series, subequal, narrowly linear, 1 to 1.5 mm. long; operculum borne about 5 mm. below corona, erect, 1.5 mm. high, fimbriate nearly to base; ovary narrowly ovoid, sericeo-tomentose; fruit ovoid, 3.5 to 4 cm. long, 2 to 2.5 cm. wide, yellowish seeds ovate, about 6 mm. long and 3 mm. wide, punctate.

TYPE LOCALITY: Near La Valza, Quindío Mountains, Colombia.

ILLUSTRATIONS: Humb. & Bonpl. Pl. Aequinoct. 1: *pl.* 22; Bot. Mag. 96: *pl.* 5864; Mutis, Icon, Pl. Ined. 26: *pl.* 1.

DISTRIBUTION: Known apparently from widely separated localities in Colombia, between altitudes of 1,000 and 1,700 meters, but nowhere common.

COLOMBIA: *Mutis* 791 (Ma, N), 793 (Ma, N), 939 (Ma, N).—Magdalena: Santa Marta Mountains, *H. H. Smith* 1882 (A, B, BM, Brux, CM, G, Gen, K, Ma, N, P, Ph, S, Ut, Y); *Schultze* 762 (B).—Boyacá: Mt. Chapón, *Lawrance* 30 (Gen, N, Y).—Cundinamarca: El Salto, *Triana* 2957 (BM, K, P).—Tolima: La Valza, Los Volcancitos, Quindío Trail, *Humboldt & Bonpland* (B, type, BW). Río Toché, Quindío Trail, *Goudot* in 1844 (K, P). La Palmilla, *Triana* 2938 (BM, HNC, P). Juza, *Lehmann* 2190 (Bo). Páramo Quindío, *Karsten* (B, V).—Huila: Neiva, *Rusby & Pennell* 942 (N, Y). El Pital, *Lehmann* 8665 (K, Y).—Nariño: Altaquer, *André* 3352 (K).

This was one of the earliest of the arboreal passionflowers to be described. In the *Flora Brasiliensis* Masters referred to it specimens from Venezuela, Colombia, Ecuador, and Peru. The Venezuelan material was later segregated as a separate species *P. Lindeniana*; the Ecuadorean specimen and the Peruvian one, which probably came from Ecuador in reality, represent *P. macrophylla*.

The specimens which I have cited as *P. arborea* show considerable variation in the size and shape of the leaves and in the width of the sepals and petals, and I am inclined to believe that more than a single species is represented, especially in view of the widely separated localities at which this material was collected. However, as the whole section *Euastrophea* is still in a state of much confusion and can be satisfactorily dealt with only by assembling all available material at one place for careful comparison, I prefer not to divide *P. arborea*

at present. All the flowering specimens cited above have a cylindric-campanulate calyx tube, enlarged at the throat, not truly cylindric as in *P. macrophylla* and *P. gigantifolia*, or campanulate as in the other species of *Euastrophea*.

314. *Passiflora frutescens* Ruiz & Pavón, sp. nov.

Frutex vel arbor, ramulis subteretibus, puberulis; folia maxima, ovata, oblongo-ovata vel oblongo-obovata, apice obtusa et emarginata, basi cordulata, subcoriacea, supra glabra, subtus glaucescentia et puberula; pedunculi solitarii, 1-furcati; flores albidii, rubro-maculati; calycis tubus infundibularis; sepala lineari-oblonga, obtusa; petala sepalis subaequalia; coronae filamenta extima subdolabriformia.

Shrub or tree, the branchlets subterete, finely puberulous, drying dark reddish brown; stipules soon deciduous; petioles 2.5 to 3.5 cm. long, stout, puberulous; leaves ovate, oblong-ovate, or oblong-obovate, 20 to 25 cm. long, 12 to 14 cm. wide, obtuse and emarginate at apex, cordulate at base, penninerved, the principal lateral nerves about 2 to a side, the midnerve bearing 2 scarlike glands at base; peduncles solitary, once-furcate, the united part 4 to 4.5 cm. long, the branches 3.5 to 4 cm. long; calyx tube funnel-shaped, about 1 cm. long, enlarged to 9 mm. at throat, glabrous; flowers white, densely red-spotted; sepals linear-oblong, 3 to 3.5 cm. long, 8 to 10 mm. wide, obtuse, ecoriuncate; petals subequal to the sepals, slightly narrower, obtuse; outer corona filaments subdolabriform, about 1.5 cm. long, enlarged just above middle to a width of 3 mm., bearing at the point of greatest width a knoblike projection.

Type in the Ruiz and Pavón Herbarium at the Jardín Botánico, Madrid, collected at Chinchao, Department of Huánuco, Peru, in 1795 by Ruiz and Pavón (*No. 247*, Fl. Peruv. Chil. ined.). Also at BM and Bo.

DISTRIBUTION: Known only from type locality, central Peru.

In this wonderfully interesting, original Ruiz and Pavón Herbarium there are two specimens of large-leaved, arborescent passion-flowers, which were assigned names by the collectors. Apparently one represents *P. macrophylla*, and the other is now being described. The present species is figured in one of the unpublished volumes of the Flora of Peru and Chile of these authors.

315. *Passiflora pubera* Planch. & Linden, Ann. Sci. Nat. V. Bot. 17: 185. 1873.

Passiflora sphaerocarpa var. *pilosula* Mast. Journ. Linn. Soc. 20: 31. 1883.

Shrub or small tree, 1.5 to 4 meters high, the young branches terete, or subangular at extremities, softly and finely cano-sericeo-tomentose; petioles up to 1.5 cm. long, rufo-villous-tomentose; leaves broadly oblong-ovate or slightly ovate, 7 to 11 cm. long, 5 to 7 cm. wide (extremes up to 30 cm. by 20 cm.), obtuse and occasionally subemarginate at apex, rounded or subtruncate at base, penninerved (lateral nerves 8 or 9 to a side, faint, the midrib biglandular at base), subcoriaceous, bright green and glabrous above, paler and densely appressed-pilosulous beneath; peduncles simple or bifurcate, up to 2 cm. long, densely cano-tomentose; flowers white; calyx tube subglobose, about 5 mm. long, 4 mm. in diameter, rufo-villous-tomentose without; sepals linear-spatulate, about 2 cm. long, 5 to 6 mm. wide, obtuse, pubescent without; petals slightly shorter than the sepals; outer corona filaments about 1.5 cm. long, dilated above middle, subdolabriform, the inner in 2 compact series, linear-clavate, 1.5 mm. long, subfalcate, densely ciliate at apex with soft, white hairs; operculum erect, 2 mm. high, attached about 3 mm. below corona, the margin lacerate-fimbriate; ovary subglobose, truncate at apex, densely pilosulous; fruit globose, 1 to 1.5 cm. in diameter, finely pilosulous or glabrescent; seeds broadly obovate, about 5 mm. long and 4 mm. wide, reticulate.

TYPE LOCALITY: Matanza, Province of Pamplona, Colombia, 1,300 meters.

DISTRIBUTION: Eastern and Central Cordilleras of Colombia, 1,000 to 1,700 meters altitude.

COLOMBIA: *Mutis* 2891 (Ma, N), 5181 (Ma, N); *Lehmann* XVI, in part (Bo). Magdalena Valley, *Triana* (HNC).—Norte de Santander: Matapira, Province of Ocaña, *Schlim* 1142 (Bo, Brux, Gen, K, P).—Santander: Matanza, *Schlim* 1709 (BM, type). Río Surata Valley, between Bucaramanga and Matanza, *Killip & Smith* 19050 (A, BM, G, N, V, Y), 19051 (A, G, N, Y), 19061 (A, G, N, Y). Between El Roble and Tona, *Killip & Smith* 19400 (A, G, N, Y).—Cundinamarca: Icononzo, *Dawe* 39 (K, N).—Tolima: Piedras, *André* 1945 (K, type of *P. sphaerocarpa* var. *pilosula*, Y). Suaza, *Lehmann* 8664 (G, K, Y).—Huila: Neiva, *Karsten* (V).—El Valle: *Schultze* in 1924 (B). Roldanillo, *Lehmann* 3412 (B, Bo, K, N). La Paila, *Holton*, 704 (Bo, G, Gen, K, Y).

The differences between this species and *P. sphaerocarpa* are slight and perhaps Masters' treatment of it as a pubescent variety of *P. sphaerocarpa* is preferable. The original description mentions as a distinguishing mark, in addition to the indument, the sub-

globose, not campanulate, calyx tube. However, well developed flowers of *P. pubera* have essentially the same shaped calyx tube as those of *P. sphaerocarpa*.

Killip & Smith 19050, duplicates of which have been widely distributed, is a perfect match for the type of *P. pubera*, in the British Museum.

LOCAL NAME: "Gulupo."

316. *Passiflora Mutisii* Killip, sp. nov.

Frutex subscandens(?), cirrhis paucis et tenerrimis vel nullis; folia oblonga, subcaudato-acuminata, subcoriacea, laeti-viridia, glabra; pedunculi dichotomi, bracteis subulatis; calycis tubus campanulatus, sepalis petalisque lineari-lanceolatis, acuminatis; coronae filamenta 1 (vel 2?)-seriata, ligulata; ovarium rufo-tomentosum.

Subscandent shrub(?), without tendrils or with a few weak ones; branchlets subterete, minutely puberulent, at length glabrescent; stipules soon deciduous; petioles 1.5 to 2 cm. long, stout, geniculate at apex, minutely puberulent; leaves oblong, 8 to 18 cm. long, 4 to 7 cm. wide, subcaudate-acuminate, rounded at base, entire, pinninerved (lateral nerves 10 to 12 to a side, the midnerve biglandular on under side close to its base, the glands scarlike), subcoriaceous, bright green when dry, glabrous; peduncles once dichotomous, the common peduncle 1.5 to 2 cm. long, the branches 1 to 1.5 cm. long; bracts subulate, about 1.5 mm. long, mucronulate; calyx tube campanulate, about 8 mm. long, and 8 mm. in diameter at the throat, glabrous; sepals linear-lanceolate, about 3 cm. long and 4 mm. wide, acuminate, green without, greenish white and mottled with red within; petals subequaling the sepals and slightly narrower, greenish yellow; corona filaments in 1 (or 2?) series, ligulate, about 2 cm. long, not dilated; ovary ovoid, truncate at apex, rufo-tomentose.

Type in the herbarium of the Jardín Botánico, Madrid, collected in Colombia, 1760 to 1808, by José Celestino Mutis (No. 2279). Duplicate at N.

ILLUSTRATION: Mutis, Icon. Pl. Ined. 26: pl. 15.

The foregoing description is derived partly from the herbarium specimens at Madrid and Washington and partly from the beautiful painting made under Mutis' direction, and preserved with nearly 7,000 other paintings and drawings which Mutis had intended should illustrate a Flora of Colombia.

The texture and shape of the leaves of this species are quite different from those of its near relatives, but above all it differs in the very

slender sepals and petals. Unfortunately the structure of the operculum is not evident in the few flowers preserved with the specimens, or in the painting.

317. *Passiflora ovata* Martin ex DC. Prodr. 3: 322. 1828.

Astrophea ovata M. Roemer, Fam. Nat. Syn. 2: 151. 1846.

Tree or shrub(?) with a few weak tendrils, glabrous throughout except the ovary; stipules linear, about 2 mm. long; petioles up to 3 cm. long, purplish, biglandular at the junction with the blade; leaves oblong, 6.5 to 11 cm. long, 3.5 to 5.5 cm. wide, rounded or almost truncate at the apex, rounded or subacute at base, penninerved (about 6 nerves to a side), subcoriaceous, bright green on both surfaces, sublustrous above; peduncles about 2 cm. long, bifurcate, the pedicels 5 to 8 mm. long; bracts linear, about 2 mm. long; calyx tube very short, campanulate-funnel-shaped, 2 to 3 mm. long, 8 to 10 mm. wide at the throat; sepals lanceolate, about 2 cm. long, 1 cm. wide at base, obtuse; petals slightly shorter than the sepals; corona 2-ranked, the outer series subdolabriform, about 1 cm. long, enlarged at the middle, the inner about 2 mm. long; operculum(?); ovary white-tomentose.

TYPE LOCALITY: French Guiana. Known only from the type locality.

FRENCH GUIANA: Cayenne: *Martin* (BM, type).

This species is known only from the single specimen preserved in the British Museum. In the *Flora Brasiliensis* Masters referred to it several collections from western South America, but subsequently he adopted (Journ. Linn. Soc. 20: 33. 1883) the views of Triana and Planchon that all of these represented other species, and he presented a redescription of *P. ovata* based solely upon the Martin specimen. He also pointed out, quite correctly, that Triana and Planchon had wrongly identified a plant of *P. costata* as this, and that their detailed description of the flower structure of *P. ovata* was for that reason erroneous.

The type specimen is in good condition, but its flowers have never been dissected sufficiently to permit a view of the operculum. The shape and texture of the leaves suggest *P. deficiens*, of the section *Pseudoastrophea*, and perhaps this species should be placed there. The single peduncle is definitely forked, however, and until additional material is collected, it seems best to refer the species to *Euastrophea*.

318. *Passiflora grandis* Killip, sp. nov.

Frutex; petioli hirsutuli vel fere tomentulosi; folia late ovata vel ovato-oblonga, ad apicem rotundata et emarginata, subcoriacea, supra glabra, subtus in nervis venisque dense hirsutula et ad basin 5-6-glandulosa, glandulis crateriformibus, flavidulis; pedunculi dichotomi, hirsutuli; calycis tubus campanulatus, sepalis petalisque oblongis; coronae filamenta 3-seriata, extima falcata, anguste dilatata, interioria filiformia; operculum subtiliter erosum; ovarium tomentosum.

Shrub, 1.5 meters high, the branchlets terete, the cortex dark brown, minutely tomentulous with black hairs, at length glabrescent; stipules soon deciduous; petioles stout, 2.5 to 3 cm. long, densely and minutely hirsutulous or nearly tomentulous, glandless; leaves broadly ovate or ovate-oblong, 20 to 28 cm. long, 12 to 17 cm. wide, rounded and emarginate at apex, rounded or subtruncate at base, entire, penninerved (lateral nerves about 14 to a side), subcoriaceous, glabrous above, pale beneath, densely hirsutulous on the strongly elevated nerves and veins beneath, the under surface bearing near its base and close to the costa 5 or 6 crateriform, yellowish glands about 1 mm. in diameter; peduncles 5 to 7 cm. long, hirsutulous with blackish hairs, twice dichotomous, the common peduncle and the branched portion subequal; bracts subulate, soon deciduous; calyx tube campanulate, about 7 mm. long, 6 mm. wide at throat; sepals oblong, 1.5 to 2 cm. long, about 6 mm. wide, obtuse, white, red-spotted; petals subequal and similar to the sepals; corona filaments in 3 series, the outer falcate, narrowed, dilated above middle, 7 to 9 mm. long, laterally compressed, those of the inner 2 filiform, 1 mm. long; operculum membranous, erect, about 1 mm. high, shallowly erose; ovary short-ovoid, densely whitish-tomentose.

Type in the herbarium of the Royal Botanic Gardens, Kew, collected in the Province of Ocaña, Department of Norte de Santander, Colombia, altitude 1,135 meters, by L. Schlim (No. 585). Duplicates at Bo, Brux, Gen, and P.

This collection was cited by Masters in the *Flora Brasiliensis* as *P. emarginata*. Triana and Planchon likewise referred it to that species and their redescription of *P. emarginata* was doubtless in part derived from this collection. Though I am reluctant to create another close segregate in this highly complex group, the specimens of Schlim 585 do not well fit into *P. emarginata* or its segregates, though in gross characters they bear a general resemblance. Masters has written on the type sheet "See numerous glands at base of leaf,

only one in *arborea* and in *Lindeniana*; see also pilose nerves." These glands are certainly quite unlike the glands in *P. emarginata* and the indument is of a darker color and more pronounced. The inner filaments of the corona are far more slender than in that species, though the operculum is substantially the same.

319. *Passiflora putumayensis* Killip, sp. nov.

Arborescens, ubique ovario excepto glaberrima; folia ovato-lanceolata, ad apicem obtusam angustata, membranacea, utrinque viridia et lutescentia; pedunculi dichotomi, bracteis setaceis; calycis tubus late campanulatus, sepalis petalisque oblongis, albidis; coronae filamenta biseriata, exteriora inferne anguste linearia, supra medium dilatata, apice attenuata, interiora pauca, filiformia; ovarium ovoid-eum tomentosum.

Shrub or tree, glabrous throughout except the ovary, the branchlets subangular; petioles 2 to 3.5 cm. long; leaves ovate-lanceolate, 19 to 25 cm. long, 8 to 11 cm. wide, gradually narrowed to an obtuse, mucronulate apex, rounded at base, entire, penninerved (lateral nerves 13 to 15 to a side; midnerve biglandular on under side close to the base, the glands scarlike, about 2 mm. in diameter), membranous, green and sublustrous on both surfaces; peduncles 4 to 5 cm. long, slender, once dichotomous; bracts setaceous, 1.5 to 2 mm. long, soon deciduous; calyx tube broadly campanulate, 7 to 8 mm. long and about as wide at the throat; sepals oblong, about 2 cm. long and 7 mm. wide, obtuse, white; petals similar to the sepals but narrower; corona filaments in 2 series, the outer about 1.5 cm. long, yellow, narrowly linear in lower half, dilated above middle, attenuate at apex, the inner few, filiform, about 3 mm. long; operculum membranous, about 3 mm. high, white, minutely denticulate; ovary ovoid, truncate at apex, white-tomentose.

Type in the United States National Herbarium, No. 1,594,215, collected at La Tortuga, Comisario del Putumayo, Colombia, May, 1935, by H. García B. (*Herb. Nac. Colomb. No. 4630*).

Apparently this is the only specimen of *Astrophea* collected in the little explored southeastern part of Colombia, lying in the Amazon basin. The lustrous leaves are suggestive of *P. Schultzei*, of the Bogotá plateau, but they are of a thinner texture, with a less elevated nervation, and they are much narrowed at the apex. The operculum, moreover, is merely denticulate.

320. *Passiflora emarginata* Humb. & Bonpl. Pl. Aequinoct. 1: 79. pl. 23. 1813.

Astrophea emarginata M. Roemer, Fam. Nat. Syn. 2: 152. 1846.

Small tree 3 to 5 meters high, the cortex rugose, dark gray, the branches erect, terete, the younger subangular, rufo-hirtellous; petioles up to 2 cm. long, rufo-hirtellous; leaves obovate or obovate-oblong, 11 to 20 cm. long, 4 to 8 cm. wide, narrowed to a rounded and often emarginate apex, rounded or subcuneate at base, penninerved (midnerve biglandular on under side near base, the glands black, nearly 2 mm. in diameter; lateral nerves 12 to 18 on a side, parallel, straight or slightly arcuate near ends, prominent, darker than the blade), coriaceous or subcoriaceous, dark green and glabrous above, paler and occasionally glaucous beneath, tomentulous or minutely hirsutulous on the midnerve; the peduncles up to 10 cm. long, 1-2-furcate, main portion subequalling or twice as long as branches, rufo-hirtellous or minutely pilosulous; bracts linear-subulate, about 3 mm. long; calyx tube campanulate, 5 to 7 mm. long, about 6 mm. wide; sepals oblong, 2 to 3 cm. long, about 6 mm. wide, obtuse, white; petals linear-spatulate, 2 cm. long, white; corona filaments laterally compressed, in 3 series, the outermost subdolabriform, 1 to 1.5 cm. long, yellow in the upper half, white in the lower, the filaments of the 2 inner series linear-falcate, dilated, 1.5 to 2 mm. long, white; operculum arising 3 to 4 mm. below the corona, membranous, 1.5 mm. high, erect, erose-lobulate, white; ovary subglobose, densely tomentose; fruit subglobose, 2.5 cm. long, 2 cm. in diameter, ferruginous-tomentose, reddish; seeds broadly ovate, 5 to 6 mm. long, 4 to 5 mm. wide, reticulate, shallowly 3-toothed at apex, the axis slightly curved.

TYPE LOCALITY: Popayán, Colombia, 1,700 meters altitude.

ILLUSTRATION: Humb. & Bonpl. Pl. Aequinoct. 1: pl. 23.

DISTRIBUTION: Southern portions of Western and Central Cordilleras of Colombia, 1,500 to 2,000 meters altitude.

COLOMBIA: El Valle: Cali, *Lehmann 8016* (G, K, N), *B.T.799* (Gen, K, Y); *Pittier 607* (BM, N).—El Cauca: Popayán, *Humboldt & Bonpland* (B, BW, Gen, P, type of *P. glauca* Humb. & Bonpl.). Palacé, *Lehmann B.T.1180* (G, K, Y). Dinde, west of Popayán, *A. García* (*Pennell & Killip 6982*; G, N, Ph, Y).

When I was in Popayán, Dr. Antonio García, an enthusiastic botanist of that city, who has written several articles on the flora of the upper Cauca Valley, called my attention to a "tree passion-flower," growing in the Western Cordillera, which he had described (García, *Cartilla Objectiva* 156. Popayán, 1919) as *Pasionaria Valenciana*. Specimens of this were procured from the type locality. Comparison of these with the very complete description and illus-

tration of *P. emarginata* show no important differences, though the leaves of our specimens are rather less pubescent than in the Humboldt and Bonpland type. Unfortunately the flowers had withered badly, and it was impossible to make satisfactory notes on the coronal structure.

The specimens from the vicinity of Cali I believe are correctly referred to this species, though the undivided portion of the peduncle is proportionately longer than in the specimens from the type region and the plants are less pubescent.

Lehmann's notes regarding No. 8016 are: "Trees up to 5 m. in height with beautiful, close, erect and squarrose crowns of branches. Leaves light sea-green. Flowers white, very sweet-scented. Fruit almost spherical, the size of a small lemon."

321. *Passiflora Engleriana* Harms in Engler & Prantl, Pflanzenfam. 3, pt. 6a: 72, 88. f. 25D. 1893; Bot. Jahrb. 18: Beibl. 46: 2. 1894.

Tree up to 5 meters high, with a close, round crown, the younger branches minutely pilosulous, purplish, subterete, the tips angulate; petioles about 2 cm. long, stout, rufo-hirtellous; leaves obovate-oblong, 12 to 20 cm. long, 4 to 8 cm. wide, rounded and often emarginate at apex, gradually narrowed from above middle to a rounded base, entire, penninerved (lateral nerves 12 to 18 to a side, straight, arcuate only at ends; midnerve biglandular at very base, the glands about 2 mm. long, black), coriaceous, glabrous, dark green above, glaucescent beneath, the nerves and veins elevated and hirsutulous beneath; peduncles 2 to 4 cm. long (unbranched portion), once dichotomous, the branches 3 to 3.5 cm. long; bracts linear, about 2 mm. long; calyx tube campanulate-funnel-shaped, 8 mm. long, 6 mm. wide at throat, gradually narrowing to base; sepals oblong, about 2 cm. long, 5 to 6 mm. wide, obtuse, fleshy, reddish(?) without, white, reddish-streaked within, at length reflexed; petals oblong, slightly shorter and narrower than the sepals, at length reflexed, white; corona filaments in 2 series, the outer ones yellowish, broadly falcate-dilated, 9 to 11 mm. long, about 2 mm. wide at the widest point, the apex short-acuminate, the inner ones compressed, sub-dolabriform, 1.5 to 2 mm. long; operculum membranous, erect, about 2 mm. high, minutely pectinate; ovary ovoid, densely ferruginous-tomentose.

TYPE LOCALITY: Yarumal, Antioquia, Colombia.

ILLUSTRATION: Engl. & Prantl, Pflanzenfam. 3, pt. 6a: 72. f. 25D; ed. 2, 21: 477. f. 218D.

DISTRIBUTION: Known only from the type locality, in the mountains of northwestern Colombia.

COLOMBIA: Antioquia: Yarumal, *Lehmann 7631* (B, type, G, K, N, S).

Specimens of this collection distributed from Kew bear the data "Between Sibaté and Fusagasugá (Department of Cundinamarca)." The copy of Lehmann's field notes, in the Kew library, however, gives the Antioquia locality.

This species is very closely related to *P. emarginata*, the only points of difference being apparently the more deeply cleft operculum and the indument on the under side of the veins.

322. *Passiflora Schultzei* Harms, Notizbl. Bot. Gart. Berlin 10: 808. 1929.

Shrub about 1.5 meters high, glabrous throughout except the ovary; petioles 2.5 to 3 cm. long; leaves oblong or oblong-lanceolate, 15 to 25 cm. long, 5 to 11 cm. wide (up to 30 cm. long and 15 cm. wide?), acute or subobtuse, rounded at base, penninerved (principal lateral nerves 12 to 14 to a side; midnerve biglandular at base), strongly reticulate-veined, coriaceous, lustrous, concolorous; peduncles 7 to 10 cm. long including branches, 1 to 3 times forked; flowers white; calyx tube broadly funnel-shaped, about 8 mm. long and 8 mm. wide at throat; sepals oblong, 1.6 to 1.8 cm. long, 7 to 8 mm. wide, obtuse; petals slightly shorter than the sepals; corona filaments in 3 series, the outermost 1 to 1.3 cm. long, falcate-dilated above middle, attenuate at apex, the inner filiform, 2 to 3 mm. long; operculum borne just above middle of tube, membranous, about 2 mm. high, lacerate-fimbriate; ovary ovoid, sericeo-velutinous.

TYPE LOCALITY: Fusagasugá, Colombia, 1,800 meters altitude.

DISTRIBUTION: Known positively only from the type locality in the Eastern Cordillera of Colombia.

COLOMBIA: *Mutis 2273* (Ma, N).—Cundinamarca: Fusagasugá, *Schultze 151* (B, type).

The thick, strongly veined, lustrous leaves and long peduncles are the character by which this species may be most easily distinguished from its near relatives. The Mutis specimen lacks flowers and therefore is doubtfully placed here. Its largest leaf is 30 cm. long and 15 cm. wide.

323. *Passiflora Lindeniana* Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 182. 1873.

Tree, glabrous throughout, except the ovary; petioles up to 3 cm. long; leaves oblong-obovate, 10 to 15 cm. long, 5 to 10 cm. wide (or up to 25 cm. long, 15 cm. wide), subacute or slightly emarginate at apex, rounded, often slightly oblique at base, prominently penninerved (midnerve biglandular on under surface at base), membranous, glaucescent beneath; peduncles up to 4 cm. long, slender, once dichotomous, the undivided portion and the branches subequal; flowers white; calyx tube broadly campanulate, 1 to 1.2 cm. long, 0.8 to 1 cm. wide at throat; sepals lanceolate or oblong-lanceolate, 2.5 to 3 cm. long, 0.8 to 1 cm. wide, obtuse; petals 2 to 2.5 cm. long; corona filaments in 3 or 4 series, the outermost linear-spatulate or slightly dolabriform, about 1.3 cm. long, those of the inner 2 or 3 series broadly linear, 2 mm. long; operculum filamentose nearly to base; ovary sericeo-tomentose; fruit broadly ovoid, 4 cm. long, 2.5 cm. wide, glabrous, yellow, red-maculate.

TYPE LOCALITY: State of Mérida, Venezuela, 2,237 meters altitude.

DISTRIBUTION: Mountains of western Venezuela.

VENEZUELA: Aragua: Colonia Tovar, *Fendler 2548* (Bo, Brux, G, Gen, Mo).—Mérida: *Linden 1409* (BM, Gen, P, type, V); *Funck & Schlim 1215* (BM, Bo, Gen, K, P).

This, the only Venezuelan species of *Euastrophea*, is distinguished from its nearest Colombian relative, *P. ocanensis*, by a more deeply cut operculum, smaller flowers, and slenderer peduncles.

324. *Passiflora sphaerocarpa* Tr. & Planch. Ann. Sci. Nat. V. Bot. 17: 184. 1873.

Tree, 2 to 4 meters high, glabrous throughout except the ovary; petioles 1 to 2 cm. long; leaves obovate or elliptic-oblong, 7 to 15 cm. long, 4 to 7 cm. wide, rounded and emarginate at apex, obtuse at base, penninerved (nerves usually yellowish beneath, the midnerve biglandular at base, the principal lateral nerves 8 to 11 to a side), membranous, yellowish green above, usually glaucous beneath; peduncles simple or bifurcate, 1 to 2.5 cm. long including branches; bracts narrowly linear, 1.5 to 2 mm. long; flowers white; calyx tube broadly campanulate, 5 to 7 mm. long; sepals narrowly oblong, 2 to 2.5 cm. long, 5 to 6 mm. wide, obtuse; petals obovate-oblong, slightly shorter than the sepals; corona filaments in 3 or 4 series, the outermost laterally flattened, subdolabriform, about 1 cm. long, attenuate

above the dilated portion, the inner 2 or 3 series unequal (the longest 2 mm. long), dilated above the middle; operculum erect, 2 mm. high, fimbriate to the middle; ovary ovoid, sericeo-velutinous; fruit globose.

TYPE LOCALITY: Between Matanza and Bucaramanga, Santander, Colombia.

ILLUSTRATION: Mutis, Icon. Pl. Ined. 26: pl. 14.

DISTRIBUTION: Eastern Cordillera of Colombia, 500 to 1,625 meters altitude.

COLOMBIA: *Mutis* 792 (Ma, N), 938 (Ma, N), 1932 (Ma, N), 2889 (Ma, N).—Santander: Between Matanza and Bucaramanga, 1,624 meters, *Schlim* 285 (erroneously cited as 2985; Bo, Brux, Gen, K, P, type). Barriga, *Kalbreyer* 637 (B, K).—Cundinamarca: La Mesa, *Triana* 2939 (BM, Brux, Gen, HNC, K, P). Bogotá, *Lehmann* XVI, in part (BM). Fusagasugá, *Pennell* 2718 (N, Y); *Goudot* in 1844 (P). El Peñon, *Goudot* in 1844 (K). Tocaima, *Goudot* (Bo). Anapoima, *Triana* (BM, K).

This is evidently the commonest species of *Astrophea* in the Eastern Cordillera of Colombia. The specimens cited above are quite uniform. The leaves are smaller than in its near relatives.

325. *Passiflora ocanensis* Planch. & Linden, Ann. Sci. Nat. V. Bot. 17: 183. 1873.

A much branched tree, without tendrils, glabrous throughout (except the ovary), the bark of the younger branches reddish-brown; stipules triangular-ovate, 2.5 mm. long, acute; petioles up to 2 cm. long, canaliculate; leaves oblong or oblong-obovate, 7 to 15 cm. long, 3.5 to 7 cm. wide, rounded and usually subemarginate at apex, rounded at base, penninerved (lateral nerves 10 to 14 on each side, ascending from base, the midnerve biglandular at base), coriaceous, dark green above, glaucescent beneath; peduncles solitary, bifurcate, the main portion 1 to 1.5 cm. long, the branches 2 to 2.5 cm long; flowers white; calyx tube campanulate, about 8 mm. long, 5 mm. wide; sepals oblong-spatulate, 2 cm. long, 7 mm. wide, obtuse; petals slightly shorter than the sepals; outer corona filaments about 1.5 cm. long, dilated near middle, subdolabriform, the inner subclavate up to 1 mm. long, in 2 series; operculum erect, about 2 mm. high, attached 5 mm. below corona, lacerate-fimbriate to the middle; ovary subglobose, truncate, rufo-sericeo-tomentose.

TYPE LOCALITY: "Province of Ocaña," Colombia.

DISTRIBUTION: Northern part of the Eastern Cordillera of Colombia.

COLOMBIA: Norte de Santander: Ocaña, 1,625 meters, *Schlim* 693 (Bo, Gen, K, P, type), 1148 (Bo, Brux, Gen, K, N).

This is distinguished from *P. Lindeniana* by thicker leaves, smaller flowers, relatively shorter inner corona threads, and a less deeply cut operculum.

Section 4. *Leptopoda*

326. *Passiflora leptopoda* Harms, Notizbl. Bot. Gart. Berlin 6: 347. 1917.

Astrophea glaberrima Klotzsch in Schomb. Reise Brit. Guiana 1168. 1848, name only.

Scandent shrub, without tendrils(?), glabrous throughout except the ovary; petioles up to 2 cm. long; leaves oblong or broadly lanceolate, 10 to 18 cm. long, 5 to 8 cm. wide, obtuse or obtusely acuminate, rounded at base, subcoriaceous, penninerved, the principal lateral nerves about 8 to a side, the midnerve biglandular at base beneath; inflorescence racemose, the rachis 4 to 5 cm. long, the pedicels very slender, 4 to 5 cm. long, widely divaricate or pendulous, articulate near base, the portion below the point of articulation somewhat stouter; bracts setaceous, 3 to 4 mm. long, the bractlets setaceous, 1 to 1.5 mm. long, borne at the point of articulation of the pedicels; calyx tube short-cylindric, about 1.2 cm. long, 4 to 5 mm. in diameter, enlarged at base; sepals linear-lanceolate, 4 to 5 cm. long, 3 to 4 mm. wide, acute or subobtuse, white; petals similar to the sepals, slightly shorter and narrower; corona filaments in several series, the outermost about 3 cm. long, liguliform in lower half, very slender, almost capillary in upper half, the succeeding indefinite series consisting of a mass of plumose, reflexed, white filaments 3 to 4 mm. long; operculum membranous, erect, entire; gynophore slender, about 3.5 cm. long; ovary narrowly ovoid, sericeo-tomentose; fruit globose, about 2.5 cm. in diameter, subquincunangular, glabrous.

TYPE LOCALITY: Rio Branco, Brazil, near Serra de Carauma.

DISTRIBUTION: Surinam, southern British Guiana, and northern Brazil.

SURINAM: Corantijne River, near Wonotobo Falls, *Stahel & Gonggrijp* 59 (Ut).

BRITISH GUIANA: Savanna, *Schomburgk* 424 (B, type of "*Astrophea glaberrima*").

BRAZIL: Amazonas: Rio Branco, *Ule* 7708 (B, type, K, N).

This species presents such an assemblage of unusual characters that it seems best to place it in a monotypic section of *Astrophea*. The inflorescence is racemose, but the flowers are borne on long, very slender pedicels. The sepals, petals, and outermost corona filaments are very slender for *Astrophea*; the densely plumose threads constituting the inner filaments suggest the genus *Dilkea*.

Section 5. *Pseudoastrophea*

327. *Passiflora candida* (Poepp. & Endl.) Mast. Trans. Linn. Soc. 27: 629. 1871; in Mart. Fl. Bras. 13, pt. 1: 573. 1872.

Tacsonia candida Poepp. & Endl. Nov. Gen. & Sp. 2: 59. pl. 180. 1835.

Distephana candida M. Roemer, Fam. Nat. Syn. 2: 199. 1846.

Passiflora Guedesii Huber, Bol. Mus. Paraen. 3: 437. 1902.

High-climbing shrub with stout tendrils, the stem terete or sub-angular, ferruginous-tomentulous; stipules soon deciduous; petioles stout, 2 to 2.5 cm. long, biglandular at apex, the glands sessile, ovate, 2.5 to 3 mm. long; leaves broadly ovate or ovate-oblong, 8 to 18 cm. long, 7 to 14 cm. wide, rounded, truncate, or short-acuminatè at apex, rounded at base, remotely and obscurely callous-denticulate in upper half, penninerved (lateral nerves about 10 to a side), coriaceous, glabrous above, rufo-hirsutulous beneath on the prominent nerves and veins; peduncles solitary or in pairs, stout, clavate, 5 to 8 mm. long, tomentulous; flowers white, very fragrant; calyx tube broadly funnel-shaped, 2.5 to 3.5 cm. long, 1 to 1.5 cm. in diameter at the throat, tomentulous; sepals oblong, 3 to 4 cm. long, 1 to 1.5 cm. wide, fleshy; petals subequal to the sepals, membranous; corona filaments in 4 series, the outermost liguliform, 1.5 to 2.5 cm. long, verrucose at margin in upper half, bearing near middle of one side a short (about 1.5 mm.) appendage, the succeeding filaments filiform, diminishing from 4 to 1 mm. long; operculum borne about 7 mm. above base of tube, membranous, erect, 4 to 5 mm. high, lobulate and irregularly lacerate-fimbriate; ovary narrowly ellipsoidal, rufo-tomentose.

TYPE LOCALITY: Ega, Brazil.

ILLUSTRATION: Poepp. & Endl. Nov. Gen. & Sp. 2: pl. 180.

DISTRIBUTION: Amazonian Brazil.

BRAZIL: Amazonas: Ega, Poeppig D.2644 (V, type). Manaos, Ule 60 (B); Ducke 23559 (B, N).—Pará: Majubim, Guedes 2245 (B, Go, type of *P. Guedesii*). Faro, Ducke 8367 (B, N, Ut). Santarem, Jobert 856 (P).

This species is characterized by the unusual form of the operculum, which is regularly lobed about one-third its length; the lobes are ovate-spatulate. Poeppig and Endlicher describe the operculum as being in two series, the outer (upper) filamentose and the inner (lower) a lobate, incised-dentate membrane, but this structure is not shown either by the type specimen or by the Ducke one, which is in fine condition for study.

Passiflora Guedesii, described from material collected farther down the Amazon, appears conspecific with *P. candida*, as pointed out by Ducke. The leaves are proportionately longer, but the peculiar form of the operculum is the same.

328. ***Passiflora hexagonocarpa*** Barb. Rodr. Vellozia 1: 24. 1891; 3, pt. 1: pl. 9. 1891.

Scandent shrub with a few tendrils, essentially glabrous throughout, only the ovary pubescent; petioles 1.5 to 2 cm. long; leaves ovate-lanceolate or oblong-lanceolate, 5 to 8 cm. long, 2 to 5 cm. wide, obtuse, rounded at base, penninerved (lateral nerves 6 to 8 to a side, the midnerve biglandular at base), coriaceous, bright green and lustrous on both surfaces, prominently reticulate; peduncles solitary, 1 to 3 cm. long; calyx tube broadly funnel-shaped, 2 to 2.5 cm. long, nearly 2 cm. wide at throat; sepals ovate-lanceolate, 1.5 to 2 cm. long, about 1 cm. wide at base, subobtuse, conspicuously nerved, green without, white within; petals oblong, slightly shorter than the sepals, white; corona filaments in 2 series, the outer narrowly linear, about 1 cm. long, enlarged on one side near apex, short-attenuate at apex, verrucose along the margin of the enlarged portion and the apex, the inner filaments few, tuberculiform, less than 1 mm. long; operculum borne about 6 mm. above base of tube, erect, 2 mm. high, flabellate-lobed and irregularly lacerate-fimbriate; ovary narrowly ovoid, densely rufo-tomentulous; fruit ovoid, 7 to 8 cm. long, about 4 cm. in diameter, sharply 6-angled, minutely and scantily puberulent; seeds oblong-obovate, about 5 mm. long and 3 mm. wide, coarsely reticulate, the axis slightly curved.

TYPE LOCALITY: Manaus, Brazil.

ILLUSTRATION: Vellozia 3, pt. 1: pl. 9.

DISTRIBUTION: Upper Amazonian Brazil.

BRAZIL: Amazonas: Parintins, *Ducke 24043* (N, Ut).

Until recently collected by Dr. Ducke, in both flower and fruit, this species was known only from Barbosa's description and excellent

illustration. The shape of the calyx tube and the curious operculum are much as in *P. candida*. It differs from *P. candida*, however, in having the corona only 2-ranked, the outer filaments being enlarged close to the apex, not at the middle, and the inner ones reduced to a few tubercles.

LOCAL NAME: "Maracuyá-rana."

329. *Passiflora citrifolia* (Juss.) Mast. Trans. Linn. Soc. 27: 629. 1871; in Mart. Fl. Bras. 13, pt. 1: 544. 1872.

Tacsonia citrifolia Juss. Ann. Mus. Hist. Nat. 6: 392. 1805.

Distephana citrifolia M. Roemer, Fam. Nat. Syn. 2: 199. 1846.

Subscandent shrub(?), glabrous throughout except the ovary; stem terete, strongly striate; stipules narrowly linear, soon deciduous; petioles 1.5 to 3 (or up to 5?) cm. long, biglandular at apex, the glands sessile, saucer-shaped; leaves oblong or ovate-oblong, 12 to 20 cm. long, 5 to 11 cm. wide, abruptly short-acuminate, rounded at base, penninerved (principal lateral nerves 8 or 9 to a side, strongly arcuate toward the margin), prominently reticulate, coriaceous, pale green and sublustrous, margined with a conspicuous, narrow, dark brown or blackish band; peduncles about 4.5 cm. long, slender; calyx tube apparently cylindric-funnel-shaped, about 1 cm. long; corona filaments in 4 series, the outermost clavate, erect, those of the next 2 series successively shorter, one-third to one-fifth as long, filiform, the innermost capillary, paler, reflexed; ovary ovoid, densely short-white-villous; fruit ovoid, glabrous.

TYPE LOCALITY: Probably French Guiana.

DISTRIBUTION: Probably French Guiana.

FRENCH GUIANA: Cayenne, *Leprieux* in 1850 (P); *Perrottet* in 1821 (Gen); *Sagot* in 1857 (K).

None of these specimens has good flowers, and the material that Jussieu had at hand was so poor that he said he proposed the species with much hesitation. The specimens here cited seem to represent a well marked species, however, apparently not described under any other name subsequently. It is most readily recognized by the dark margin of the leaves. Because of the unsatisfactory condition of the flowers, its exact position cannot be readily determined. The Sagot specimen at Kew, from which the description of the corona given above is derived, indicates that the general relationship is with *P. deficiens* and *P. costata*.

330. *Passiflora deficiens* Mast. Journ. Bot. Brit. & For. 21: 34. 1883.

Scandent shrub(?); tendrils few or none; branches terete, finely puberulent, glaucescent; petioles 1 to 3 cm. long, glandless, finely puberulent; leaves narrowly oblong, 10 to 20 cm. long, 4 to 7 cm. wide, short-acuminate, rounded or slightly narrowed at base, entire, penninerved (principal lateral nerves 10 to 15 to a side, rather prominent, the intermediate secondary nerves fainter, the midnerve biglandular near base), reticulate-veined, subcoriaceous, light green, sublustrous, glabrous; peduncles solitary, 3 to 4 cm. long, slender, articulate above middle, puberulent; bracts setaceous, 1 to 1.5 mm. long, deciduous, borne at point of articulation; calyx tube short-campanulate, 2 to 4 mm. long, 5 to 7 mm. wide at throat, introrse; sepals oblong, 2 to 2.5 cm. long, 0.8 to 1 cm. wide, obtuse; petals similar to the sepals; outer corona filaments 2 to 2.5 cm. long, falcate-dolabriform (dilated portion shallowly lobed or deeply cleft at inner margin), smooth at margin, the inner filaments in 4 or 5 series, decreasing in length from 7 mm. (upper) to about 4 mm. (lower), capillary, capitellate, erect; operculum arising about 3 mm. above base of tube, about 1 mm. long, dependent, crenulate; ovary oblong, rufo-tomentellous; styles hirsutulous.

TYPE LOCALITY: Essequibo River, British Guiana.

DISTRIBUTION: British Guiana.

BRITISH GUIANA: Essequibo River, *Jenman 1169* (BG, K, type). Upper Demerara River, *Jenman 3999* (BG). Potaro Landing, *Jenman 7501* (Ut).

In describing this interesting species Masters comments on the deep tubular "basal corona" and on the absence of a "middle corona." As mentioned elsewhere, the use of the terms "middle" and "basal" for the two interior corona-like processes of *Passiflora* was not wholly satisfactory. In the case of *P. deficiens* the interior membrane is borne very close to the floor of the calyx tube, much below its middle. However, from its structure it is far more like the operculum of other species of *Astrophea* than like the true limen (basal corona) in *Plectostemma*, *Dysosmia*, and *Granadilla*.

331. *Passiflora costata* Mast. in Mart. Fl. Bras. 13, pt. 1: 573. 1872.

Passiflora eminula Mast. Journ. Linn. Soc. 20: 32. pl. 20, f. 1-3. 1883.

Passiflora hydrophila Barb. Rodr. Vellozia 1: 26. 1891: 3, pt. 1: pl. 13. 1891.

Passiflora inundata Ducke, Archiv. Jard. Bot. Rio de Janeiro 4: 146. 1925.

Subscandent shrub; branches subangular, stout, puberulent; tendrils few, usually very slender; petioles up to 3.5 cm. long, biglandular at apex, the glands ovate, scarlike; leaves obovate to narrowly oblong-obovate, 5 to 25 cm. long, 4 to 16 cm. wide, rounded, rarely subacute, often emarginate at apex, cordulate or rounded and usually subpeltate at base, penninerved (nerves 12 to 15 to a side, impressed above, prominent beneath), conspicuously reticulate, coriaceous, dull or very slightly lustrous and glabrous above, glabrous or usually finely puberulent beneath, at least on the nerves and veins; peduncles solitary or in pairs, 1 to 4 cm. long; bracts narrowly linear, about 2 mm. long, scattered; flowers 6 to 7 cm. wide (expanded), fragrant; calyx tube broadly campanulate or slightly funnel-shaped, 5 to 10 mm. long, about 1 cm. wide at the throat; sepals oblong-lanceolate, 2 to 3 cm. long, 1 to 1.3 cm. wide, slightly concave at apex, fleshy, green without, white within; petals oblong-spatulate, 1.5 to 2.5 cm. long, 1 cm. wide, obtuse, membranous, white; corona filaments in about 6 series, the outermost subdolabriliform, 1.5 to 2 cm. long, orange, reddish at middle, laterally compressed, usually lobulate along inner margin at widest point, the attenuate tip verrucose, the filaments of the succeeding series narrowly liguliform, gradually decreasing in length from 5 to 1 mm.; operculum membranous, deflexed at base, the upper half erect, minutely denticulate; gynophore stout, swollen at a point about 5 mm. above base; ovary narrowly ovoid, sulcate, densely tomentose.

TYPE LOCALITY: Junction of Rio Negro and Amazon, Brazil.

ILLUSTRATIONS: Journ. Linn. Soc. 20: *pl.* 20, *f.* 1-3; Vellozia 3, *pt.* 1: *pl.* 13.

DISTRIBUTION: Surinam, French Guiana(?), and British Guiana to northeastern Peru, at low elevations; Rio de Janeiro, where probably introduced.

SURINAM: *Menge, ex reliq. Wullschlgel* (Brux). Lawa River, *Kappler 2118* (Leid, P, Ut, V). Tapanahoni River, *Versteeg 850* (Ut). Gonini River, *Versteeg 177* (Ut), *255* (Ut). Surinam River, *Fairchild 3827a* (N); *Lanjouw 1148* (Ut). Coppename River, *Boon 1090* (Ut), *1113* (Ut), *1207* (Ut). Bergendaal, *Focke 1148* (Ut).

BRITISH GUIANA: *Appun 2173* (K). Essequibo River, *Jenman 1160* (BG), *1305* (BG, K). Mazaruni River, *Jenman 742* (BG, K),

7600 (BG, N, Y), 7622 (B, BG), 7642 (BG, N). Corembyne River, *Im Thurn* (K, type of *P. eminula*); *Jenman* 327 (BG).

PERU: Loreto: Soledad, *Tessmann* 5286 (B, Bas). Iquitos, *Tessmann* 3675 (B).

BRAZIL: Amazonas: Rio Negro, *Spruce* 1670 (K, type), 1676 (K, P). Lago Uaicurapá, *Ducke* 24040 (N).—Pará: Rio Tapajós, *Ducke* 14647 (type collection of *P. inundata*; B, Bo, K, N, S, Ut); *Dahlgren & Sella* 58 (N). Rio Cunimá, *Sampaio* 5240 (B), 5375 (B).—Rio de Janeiro: Quinta de São Christovão, *Glaziov* 13912a (K, P).

No differences are discernible between *P. eminula* and *P. costata*. Masters states that *P. costata* is "glaberrima," but some of the specimens he cites, such as the "Wullschlägel" collection, have the leaves and stem finely puberulous, similar to the type of *P. eminula*. This fine puberulence differs in degree in the material cited above, being more prominent in the Guiana specimens than in the Brazilian ones.

Passiflora hydrophila, based upon a Rio Negro plant, I know only from the description and detailed illustration accompanying it, but it unquestionably is the same as *P. costata*. Type material of *P. inundata* I have compared directly with the type of *P. costata*, and find no differences other than the slightly larger flowers and longer peduncles and petioles of the former.

Barbosa gives as a local name "maracuyá do igapó." In Surinam this is known as "marcusa."

332. *Passiflora faroana* Harms, Notizbl. Bot. Gart. Berlin 10: 809. 1929.

Subscandent shrub, glabrous throughout except the ovary; petioles 5 to 10 mm. long, biglandular at junction with blade, the glands scarlike; leaves ovate or broadly ovate-oblong, 4 to 10 cm. long, 3 to 6 cm. wide, obtuse and sometimes emarginate at apex, rounded at base, subcoriaceous, conspicuously reticulate-veined and sublustrous on both surfaces; peduncles solitary, 1 to 5 mm. long at anthesis, up to 15 mm. long in fruit, corrugate; flowers white, red-maculate; calyx tube funnelform, about 1 cm. long; sepals linear-oblong, 1.5 cm. long, 4 mm. wide, carinate distally; petals linear, slightly shorter than the sepals, about 2 mm. wide; corona filaments in 2 well defined and several poorly defined series, the outermost narrowly linear, 1 cm. long, falcate-dilated above middle and verrucose along margin, those of the second series adjacent to the preceding, liguliform, about 2 mm. long, the succeeding filaments borne in 3

or 4 irregular rows at middle of tube; operculum erect, borne just below middle of tube, about 3 mm. high, cleft in upper third into broadly clavate segments; ovary ovoid, hexagonal, puberulent; fruit subglobose, 2 cm. in diameter sparingly puberulent; seeds obovate, 5 mm. long, 3 mm. wide, coarsely reticulate.

TYPE LOCALITY: Campina do Jupiry, near Lago de Faro, State of Pará, Brazil.

DISTRIBUTION: Known only from the type locality, in lower Amazonian Brazil.

BRAZIL: Pará: Campina de Jupiry, near Lago de Faro, *Ducke 325* (B, type, K, N). Campos de Tigre, Faro, *Ducke 675* (B, Bo, K, P, N).

Excellent material deposited in the United States National Herbarium by Ducke permits a more detailed diagnosis of the flowers and fruit than that given by Harms. Although the foliage is suggestive of *P. sclerophylla* and *P. phaeocaula*, the multiple corona indicates probably that it is more closely related to *P. costata*.

333. *Passiflora sclerophylla* Harms, Notizbl. Bot. Gart. Berlin 6: 347. 1917.

Scandent shrub, 1 to 2 meters high, the branches glabrous or the younger puberulent; petioles 5 to 10 mm. long, biglandular at apex; leaves suborbicular, oval, obovate, or oblong, 4 to 7 cm. long, 3 to 7 cm. wide, rounded, emarginate, or subacute at apex, rounded at base, reticulate-veined (veins elevated beneath), thick-coriaceous, glabrous and shining above, short-villosulous beneath; peduncles solitary in the axils or in 2's or in 3's, 1 to 1.5 cm. long, appressed-pubescent; calyx tube broadly funnel-shaped, nearly 1 cm. long, 1 cm. in diameter at the throat; sepals narrowly oblong, 2.3 to 2.5 cm. long, obtuse; petals lanceolate, 1.8 to 2 cm. long; corona filaments in 2 series, the outer about 2 cm. long, laterally compressed, geniculate at middle, the upper half narrowly linear-attenuate, verrucose along margin, the inner filaments filiform, about 3 mm. long; operculum cleft nearly to the base into linear-clavate segments about 3 mm. long; ovary narrowly oblong, densely ferruginous-tomentose.

TYPE LOCALITY: "Guyana, Venezuela: Roraima."

DISTRIBUTION: Southern Venezuela and southern British Guiana.

BRITISH GUIANA: Mt. Roraima, *Ule 8667* (B, type, Go, Ut); *Im Thurn 110* (BG, BM, K, N); *Schomburgk 986* (B); *G. H. H. Tate 323* (Y).

VENEZUELA: Amazonas: Mt. Duida, 2,000 meters, *G. H. H. Tate* 521 (Y).

This species is most easily recognized by very strongly reticulate leaves, densely villosulous beneath. The tendrils are unusually well developed for species of *Astrophea*. In Tate's recent collection on Mt. Duida the leaves are proportionately broader than in typical material from Mt. Roraima.

334. *Passiflora Mansii* (Mart.) Mast. Trans. Linn. Soc. 27: 629. 1871 (as *P. Mansoi*); in Mart. Fl. Bras. 13, pt. 1: 572. *pl.* 107. 1872.

Tacsonia(?) *Mansii* Mart. Flora 22, pt. 1: Beibl. 7. 1839.

Passiflora Mansoi var. *glabra* Hoehne, Comm. Linh. Telegr. Matto Grosso, Anexo 5, Bot. pt. 5: 74. 1915.

Erect, few-branched shrub, 1 to 1.5 meters high, sometimes the upper branches tendril-bearing and scandent; stem terete, softly pilosulous; stipules linear-subulate, 1 to 2 mm. long; petioles 1 to 2 cm. long, biglandular at or just below the apex; leaves broadly ovate, 8 to 15 cm. long, 5 to 12 cm. wide, acute or acuminate, rarely obtuse, rounded at base, penninerved (lateral nerves about 6 to a side), coriaceous, lustrous and bright green above, paler beneath, usually glabrous above and softly velutinous beneath, rarely glabrous on both surfaces; peduncles solitary, 5 to 10 mm. long, rarely up to 30 mm., articulate near base; bracts linear-subulate, about 1.5 mm. long, verticillate at point of articulation; flowers white, pilosulous without; calyx tube cylindric-campanulate, 10 to 12 mm. long, 6 to 8 mm. in diameter, enlarged at base; sepals ovate-oblong, about 2 cm. long, 8 to 9 mm. wide, obtuse; petals narrowly oblong, about 1.5 cm. long, 5 mm. wide, obtuse; corona filaments in 2 series, the outer 1 to 1.3 cm. long, dolabriform in the upper quarter, subulate at apex, the inner filiform, 3 to 3.5 mm. long, adjacent to the outer; operculum borne just below middle of tube, filamentose to base, the filaments subulate, about 3 mm. long; ovary ovoid, densely pilosulous; fruit globose, pilosulous.

TYPE LOCALITY: Cuyabá, Matto Grosso, Brazil.

ILLUSTRATION: Mart. Fl. Bras. 13, pt. 1: *pl.* 107.

DISTRIBUTION: Central and southern Brazil.

BRAZIL: *Pohl* 8 (V). "Brazil occid.," *Tamberlik* (Gen, V).—Goyaz: *Gardner* 3194 (BM, K).—Minas Geraes: Serra do Quartel, *Claussen* 62 (Gen). Viçosa, *Mexia* 5082a (Gen, N).—Matto Grosso:

Cuyabá, *Manso* (Brux, type, Y); *Martius* (*Herb. Fl. Bras.* 276; B, Brux, Gen, K, V, Y); *Malme* 1164 (S), in 1902 (S); *Collenette* 184 (Y); *Dorrien Smith* 303 (K, Y). Santa Anna da Chapada, *Malme* 2206 (S); *Robert* 428 (BM), 452 (B, BM, K), 465 (BM).—Paraná: Ypiranga, *Dusén* 12106a (BM, Gen, N, S). Cadeado, *Dusén* 8831 (B, S). Serra do Mar, *Jönsson* (*Dusén* 851a; S).

Masters cites another *Martius* specimen, from Ega, on the upper Amazon. I have not seen this, and am rather doubtful that this species occurs in that region. The two specimens in the *Martius* Herbarium at Brussels are labeled "*Tacsonia*(?) *Mansii* Mart., Cuiaba, Prov. Goyaz, legit *Manso*," and "*Mart. Herb. Fl. Bras.* 276, prope Cuiaba, Febr. 1832."

The notes of some collectors state that this is an erect shrub 1 to 1.5 meters high, the added observation being sometimes made that it is subscandent toward the summit. Most of the specimens examined are without vestige of tendrils, but in a few cases (*Dusén* 8831) well developed tendrils are present. A note on the *Mexia* specimen, which is without tendrils, states that the plant was a woody vine, climbing on a tree to a height of 8 meters.

LOCAL NAME: "Maracujá de chapada."

335. *Passiflora haematostigma* Mart. ex Mast. in Mart. Fl. Bras. 13, pt. 1: 574. *pl.* 108, *f.* 1. 1872.

Passiflora platystyla Mast. Journ. Bot. Brit. & For. 21: 35. 1883.

Plant scandent; bark brown, puberulent, the younger branches densely and softly villosulous, the tendrils slender or well developed; stipules setaceous, deciduous; petioles up to 2.5 cm. long, inconspicuously biglandular near apex; leaves elliptic, oblong-lanceolate, or oblong, 5 to 10 cm. long, 2.5 to 5 cm. wide (lower leaves cordate-ovate, up to 13 cm. long, 11 cm. wide), acute or rounded, often subemarginate at apex, rounded at base, penninerved (lateral nerves 4 to 6 on a side, arcuate toward margin), slightly revolute, coriaceous, glabrous and shining above, densely and softly brown-villosulous beneath; peduncles 2 to 4 cm. long, articulate near middle, densely puberulous; bracts setaceous, scattered; calyx tube short-cylindric-campanulate, about 1 cm. long, 6 mm. wide at throat, softly puberulous without; sepals linear-oblong, 2.5 to 3 cm. long, 5 to 7 mm. wide, obtuse, green and softly puberulous without, white at margin, white within; petals linear-spatulate, 1.5 to 2 cm. long, 3 to 4 mm. wide, obtuse, white; corona filaments in 2 series, the outer about 1.5 cm. long, subdolabriform, dilated just above middle, attenuate and

slightly verrucose to apex, those of the inner series linear-clavate, about 2 mm. long, strongly compressed; operculum borne at middle of tube, 1.5 to 2 mm. long, white, filamentose about to middle; ovary oblong, densely and softly puberulous.

TYPE LOCALITY: Minas Geraes, Brazil (type, *Martius* MS. No. 1136, in Munich Herbarium).

ILLUSTRATION: Mart. Fl. Bras. 13, pt. 1: *pl.* 108, *f.* 1.

DISTRIBUTION: Southeastern Brazil, extending from Minas Geraes southward.

BRAZIL: *Sello* 310 (N), 1092 (B, BM, K), 1105 (B), 1126 (B). Cerros dos Pirrheiros, *Pohl* 3498 (V).—Minas Geraes: Serra do Caraça, *Barreto* 885 (N); *Mendonça* 1041 (B). Ouro Preto, *Schwacke* 7474 (B).—Rio de Janeiro: *Raben* (*Martius* 564; Brux, Cop). Nova Friburgo, *Glaziov* 13454 (B, Brux, Cop, Gen, K, type of *P. platystyla*, P); *Curran* 643 (N).—São Paulo: "Morro del Oro," *Puiggari* in 1883 (P). Santa Anna, *Brade* 6095 (S). São Paulo, *Mosén* in 1870 (S). Cesario, *Hoehne* 4507 (N).—Paraná: Itararé, *Dusén* 16521 (G).

Large-leaved forms of this species are sometimes confused with *P. Mansii*. Flower structure of the two is quite different: in *P. Mansii* the inner filaments of the corona are subulate, in *P. haematostigma* linear-clavate; in *P. Mansii* the operculum is filamentose to the base, in *P. haematostigma* cleft only part way. Tendrils are usually present in this species, although in *Mosén*'s plant from São Paulo they are very slender. *Passiflora platystyla* is scarcely distinguishable from *P. haematostigma*.

This is one of the few species of *Pseudoastrophea* of which the lowermost leaves have been seen in herbaria. The sheet of *Dusén* 16521 in the Gray Herbarium shows a portion of the basal part of the plant bearing leaves shaped much like those of *P. ligularis*. The thick stem of this lower portion has stout tendrils, and the plant doubtless is a woody vine rather than a shrub.

336. *Passiflora ceratocarpa* Silveira, Archiv. Jard. Bot. Rio de Janeiro 5: 217. *pl.* 30. 1930.

Woody vine; stem terete, pilosulous, glabrescent with age; petioles about 2 cm. long, biglandular at apex, the glands sessile; leaves ovate or cordate-ovate, 10 to 14 cm. long, 7 to 12 cm. wide, obtuse at apex, cordate, entire, penninerved (principal lateral nerves about 7 to a side), conspicuously reticulate-veined, thick-coriaceous,

lustrous and finely puberulent on the nerves above, pilosulous beneath; peduncles solitary, erect, about 1.5 cm. long, articulate near middle; flowers 3.5 to 5 cm. wide (expanded); calyx tube short-cylindric-campanulate, about 10 mm. long, 8 mm. wide; sepals oblong, 2.5 to 3 cm. long, 7 to 8 mm. wide, obtuse, subcoriaceous; petals subequal to the sepals; corona filaments in 2 series, the outer erect, subfalcate, about 1 cm. long, dilated above middle, rounded at apex, those of the second series narrowly linear, about 1 cm. long; operculum borne just below middle of tube, membranous, denticulate; ovary ovoid, puberulous; fruit subglobose, 2.5 to 3 cm. in diameter, the exocarp coriaceous, puberulous; seeds broadly obovate, 5 to 7 mm. long, 4 to 5 mm. wide, coarsely reticulate.

TYPE LOCALITY: Pará (Belem), Brazil.

ILLUSTRATION: Archiv. Jard. Bot. Rio de Janeiro 5: *pl.* 30. 1930.

DISTRIBUTION: Pará, lower Amazon Basin, Brazil.

BRAZIL: Pará: Belem do Pará, *Ducke 17333* (type collection; B, Bo, K, N, Ut); *Dahlgren & Sella 760* (F).

This is distinguished from *P. haematostigma* by its differently shaped outer corona filaments and less deeply cut operculum. The leaves are larger and thicker.

337. *Passiflora phaeocaula* Killip, Journ. Wash. Acad. Sci. 17: 430. 1927.

Plant scandent, the tendrils well developed; stem subquad-rangular, slender, dark purple; stipules setaceous, soon deciduous; petioles 5 to 8 mm. long, glandless or obscurely glandular at base of leaf, minutely puberulent; leaves oval, 3.5 to 5 cm. long, 2 to 2.5 cm. wide, rounded and slightly emarginate at apex, rounded at base, entire, penninerved (lateral nerves 5 to 7 to a side), reticulate-veined (nerves and veins elevated and conspicuous on both surfaces), thick-coriaceous, lustrous and glabrous above, dull and minutely puberulent beneath; peduncles solitary, 1-flowered, 4 to 6 mm. long, shorter than the adjacent petiole; bracts soon deciduous; calyx tube funnel-shaped, about 8 mm. long, 5 mm. wide at throat, dark-maculate within; sepals narrowly oblong, about 2 cm. long, 6 mm. wide, obtuse, ecoriuncate; petals similar and subequal to the sepals; corona filaments in 2 series, the outer about 1 cm. long, subdolabril-form, linear below, dilated to a width of about 1.5 mm. above middle, attenuate at tip, the inner filiform, about 1.5 mm. long, shallowly bifid; operculum borne in lower third of tube, erect, 4 mm. long, filamentose nearly to base; ovary ovoid, puberulent.

TYPE LOCALITY: Brazil: Upper Rio Negro.

DISTRIBUTION: Known only from the type locality, in western Amazonian Brazil.

BRAZIL: Amazonas: Upper Rio Negro, *Weiss & Schmidt* in 1907 or 1908 (Y, type).

338. *Passiflora elliptica* Gardn. in Hook. London Journ. Bot. 1: 173. 1842.

Scandent or subscandent shrub; branches minutely puberulent; stipules linear-subulate, about 1.5 mm. long, deciduous; petioles 1.5 to 2 cm. long, biglandular at apex; leaves elliptic, 6 to 8 cm. long, 4 to 5.5 cm. wide, obtuse and often emarginate at apex, rounded at base, penninerved (lateral nerves about 7 to a side), conspicuously reticulate-veined, subcoriaceous, glabrous and lustrous above, finely pilosulous beneath, concolorous; peduncles 1 to 1.5 cm. long; bracts linear-subulate, 1 mm. long, borne near base of peduncle; flowers white; calyx tube campanulate, 4 to 7 mm. long, 3 to 4 mm. wide; sepals oblong, 1.5 to 2 cm. long, 3 to 4 mm. wide, obtuse; petals similar and subequal to the sepals; corona filaments in 2 series, the outer liguliform, 7 to 8 mm. long, the inner minute, barely 1 mm. long; operculum borne near middle of tube, membranous, about 3 mm. high, fimbriate, the fringe 0.5 to 1 mm. long; gynophore hirsutulous at middle, otherwise glabrous; ovary ovoid, cano-sericeo-tomentose; fruit globose, about 2 cm. in diameter, the exocarp brittle, orange-color; seeds broadly ovoid, about 7 mm. long, 6 mm. wide, coarsely reticulate.

TYPE LOCALITY: Rio Comprido, Rio de Janeiro, Brazil.

DISTRIBUTION: Known positively only from the State of Rio de Janeiro, Brazil.

BRAZIL: *Sello* 584 (BM); *St. Hilaire* 135 (P).—Rio de Janeiro: Rio Comprido, *Gardner* 46 (BM, type, Gen, K, P, V, Y); *Selliers* 3039 (Gen). Corcovado, *Burchell* 1838 (K); *Miers* (BM, K). Laranjeiras, *Glaziov* 18258 (B, Brux, Cop, G, Gen, K, P). Mundo Novo, *Kuhlmann* 1726 (S, Ut).

The flowers of *P. elliptica* are smaller than in near relatives and the venation of the leaves is more evident. The outer corona filaments are not dilated as in the case of all other relatives except *P. candida*, which differs in many details.

Kuhlmann 1726 is one of the few specimens of *Pseudoastrophea* that has been collected in fruit.

339. *Passiflora pentagona* Mast. in Mart. Fl. Bras. 13, pt. 1: 575. *pl.* 108, *f.* 2. 1872.

Plant scandent or subscandent, the tendrils usually well developed; stem terete, sulcate below, glabrous or minutely puberulous above; stipules setaceous, soon deciduous; petioles 0.5 to 2 cm. long, often reflexed, obscurely biglandular at apex; leaves oblong, 5 to 10 cm. long, 3 to 5 cm. wide, rounded or acutish at apex, rounded at base, reticulate-veined, subcoriaceous, glabrous and lustrous above, glabrous or minutely puberulent beneath; peduncles 1 to 1.5 cm. long, reflexed, articulate below middle; calyx tube cylindric-campanulate, 5 to 8 mm. long, about 5 mm. wide at throat, conspicuously 5-angled, puberulent; sepals oblong, 1 to 1.5 cm. long, 4 to 6 mm. wide, obtuse; petals similar to the sepals; corolla filaments in 2 series, the outer subdolabriform, about 1 cm. long, ligulate below, dilated above middle, verrucose along inner margin at point of dilation, the inner narrowly linear, clavate; operculum borne at middle of tube, erect, about 2 mm. high, filamentose in upper half; ovary oblong, tomentulous; fruit globose, about 4 cm. in diameter, the exocarp coriaceous, brittle, yellowish; seeds ovate-oblong, about 5 mm. long, reticulate.

TYPE LOCALITY: State of Rio de Janeiro, Brazil.

ILLUSTRATION: Mart. Fl. Bras. 13, pt. 1: *pl.* 108, *f.* 2.

DISTRIBUTION: Known positively only from the State of Rio de Janeiro, Brazil.

BRAZIL: *Lhotsky* in 1832 (Gen).—Rio de Janeiro: Rio de Janeiro, *Warming* 1162 (Cop, type); *Dusen* 5090 (G); *Martius* 1221 (Brux, Gen, Y); *Schwacke* 15667 (N); *Wilkes Expedition* (N). Lagôa de Freitas, *Ule* 3798 (B).

The pendulous flowers, with a definitely 5-angled tube, constitute the most striking character by which this species may be recognized. It is very close to *P. rhamniifolia*; all the specimens I have seen have smaller leaves, however.

340. *Passiflora alliacea* Barb. Rodr. Contr. Jard. Bot. Rio de Janeiro 3: 59. *pl.* 7. 1902.

Plant scandent, the tendrils developed; stem terete, glabrous or very minutely puberulous; stipules setaceous, soon deciduous; petioles 0.5 to 1.5 cm. long, obscurely biglandular at apex; leaves oblong or ovate-oblong, 5 to 8 cm. long, 2.5 to 4 cm. wide (the lower up to 12 cm. long, 6.5 cm. wide), acute or obtusish at apex, rounded

at base, penninerved (lateral nerves 4 or 5 to a side), coriaceous, lustrous and glabrous above, glabrous beneath, or the younger minutely puberulent; peduncles solitary, 1-flowered, 1 to 2 cm. long, reflexed, articulate near base; calyx tube campanulate-funnelform, 5 to 10 mm. long, 6-angled; sepals and petals linear-oblong, 1.5 to 2 cm. long, 5 mm. wide, obtuse, white; corona filaments in 2 series, the outer 1 to 1.3 cm. long, ligulate below, dilated just below apex, corrugate along inner margin at the point of dilation, the inner 4 to 5 mm. long, narrowly ligulate, capitellate and bifid at apex; operculum borne at middle of tube, erect, 2.5 mm. high, filamentose in upper quarter; ovary ovoid, sulcate, densely puberulous or glabrous(?); fruit ovoid, 5 cm. long, 2.5 cm. in diameter, 6-angled, puberulent or glabrous(?), yellow; seeds ovate, reticulate.

TYPE LOCALITY: Botanical Garden, Rio de Janeiro, Brazil.

ILLUSTRATION: Contr. Jard. Bot. Rio de Janeiro 3: pl. 7.

DISTRIBUTION: Known only from the State of Rio de Janeiro, Brazil.

BRAZIL: Rio de Janeiro: Leblon, Chase 8459 (N).

Perhaps the maintenance of this species as distinct from *P. pentagona* is not justified. The fruit is ovoid rather than globose, and distinctly 6-angled. The inner corona filaments are deeply bifid, whereas in *P. pentagona* they are flat at the dilated apex.

Barbosa states that the foliage and fruit are strongly aromatic, suggesting the odor of *Allium*. The local name is given as *maracujá de alho*.

341. *Passiflora rhamnifolia* Mast. in Mart. Fl. Bras. 13, pt. 1: 575. 1872.

Scandent shrub, with usually well developed, slender or stout tendrils; stem subterete, glabrous or very minutely puberulent; stipules setaceous, soon deciduous; petioles 1 to 2.5 cm. long, obscurely biglandular at apex; leaves ovate-oblong to ovate-elliptic, 5 to 10 cm. long, 4 to 6 cm. wide, subacute at apex, rounded at base, submembranous, glabrous above, minutely puberulent or glabrous beneath; peduncles 1 to 1.5 cm. long, solitary, articulate near base, ascending; bracts setaceous, deciduous; calyx tube cylindric-campanulate, about 1 cm. long, 6 mm. wide at throat; sepals oblong-lanceolate, about 1.5 cm. long, 5 mm. wide, obtuse; petals similar to the sepals; corona filaments in 2 series, the outer subdolabriform, 1 cm. long, broadly linear below, dilated near apex, the inner 3 mm.

long, filiform below, broadly dilated and shallowly bifid at the apex; operculum borne just below middle of tube, erect, about 2 mm. high, filamentose in upper third; ovary ovoid, strongly sulcate, tomentulous.

TYPE LOCALITY: Cubatão, Minas Geraes, Brazil.

DISTRIBUTION: States of Minas Geraes and Rio de Janeiro, Brazil.

BRAZIL: Minas Geraes: Cubatão, *Sello* 2125 (B), 2148 (B, type, N). Arapongo, *Bailey & Bailey* 1144 (N).—Rio de Janeiro: Tijuca, *Glaziov* 17620 (B, Gen, K, P). Corcovado, *Glaziov* 3993 (Cop).

This is closely related to *P. pentagona*, the erect flowers and larger, usually subacute leaves perhaps not being sufficiently important characters upon which to separate the two.

342. *Passiflora Tessmannii* Harms, Notizbl. Bot. Gart. Berlin 9: 978. 1926.

Scandent shrub; branches glabrous, the younger portions sometimes velutinous or puberulent; stipules early deciduous; petioles 0.5 to 1.5 cm. long, biglandular at apex; leaves ovate, broadly oblong, or obovate, 5 to 9 cm. long, 2.5 to 6.5 cm. wide, acute or obtuse at apex, rounded at base, penninerved (lateral nerves about 6 to a side), membranous, glabrous above, very minutely puberulous beneath, concolorous; peduncles solitary or in pairs, 0.7 to 1.5 cm. long; calyx tube cylindric-campanulate, 0.8 to 1 cm. long, 5 to 7 mm. wide at throat; sepals narrowly oblong, 1.5 to 2 cm. long, 5 to 6 mm. wide, obtuse, green without, white within; petals similar to the sepals, 1 to 1.5 cm. long, 3 to 4 mm. wide; corona filaments in 2 series, the outer falcate-dilated above middle, attenuate at tips, about 7 mm. long, yellow, the inner subulate, about 1 mm. long; operculum borne at middle of tube, 2 mm. high, erect, fimbriate in upper quarter; ovary ovoid, velutinous.

TYPE LOCALITY: Mouth of Río Santiago, Río Marañón, Peru.

DISTRIBUTION: Known only from the type locality, in northern part of Peru.

PERU: Loreto: Río Marañón, at mouth of Río Santiago, *Tessmann* 4385 (B, type, N).

This has the general aspect of *P. elliptica*, but the leaves are of thinner texture, the flowers larger, and the outer corona filaments dilated above the middle.

343. *Passiflora venosa* Rusby, Mem. Torrey Club 6: 42. 1896.

Erect or subscandent shrub(?); branches terete, minutely puberulent; stipules setaceous, 1.5 mm. long, soon deciduous; petioles up to 1.5 cm. long, biglandular at apex; leaves ovate or ovate-lanceolate, 6 to 12 cm. long, 4 to 7 cm. wide, sharp-acuminate at apex, rounded at base, penninerved (lateral nerves 5 or 6 to a side), conspicuously reticulate-veined, coriaceous, bright green and shining above, glaucous beneath, glabrous, puberulous on midnerve beneath; peduncles solitary or in pairs, up to 1.5 cm. long; calyx tube cylindric-campanulate, 5 to 10 mm. long, about 6 mm. wide at throat; sepals oblong-lanceolate, 1.5 to 2 cm. long, 7 to 8 mm. wide, obtuse; petals linear-oblongate, equaling or slightly longer than the sepals, obtuse, violet or light purple(?); corona filaments in 2 series, the outer about 1.3 cm. long, subfalcate, laterally compressed, dilated above middle, the tips linear-attenuate, sinuate along inner margin, the inner filiform or narrowly linear, 2.5 mm. long; operculum about 2 mm. long, membranous below, fimbriate in upper third; ovary ovoid, puberulent, about 10-ribbed.

TYPE LOCALITY: Between Tipuani and Guanai, Bolivia.

DISTRIBUTION: Known only from the type locality.

BOLIVIA: La Paz: Between Tipuani and Guanai, *Bang 1656* (BM, CM, N, Ph, Y, type).

Section 6. *Botryastrophea*344. *Passiflora Quelchii* N. E. Brown, Trans. Linn. Soc. II. 6: 31. *pl. 3*. 1901.

Shrub or tree, without tendrils, glabrous throughout; stipules subulate, soon deciduous; petioles 1 to 1.5 cm. long, biglandular at apex, the glands about 2 mm. in diameter, sessile; leaves cuneate-oblong, 8 to 12 cm. long, 2 to 4 cm. wide, obtuse or short-acute at apex, gradually tapering from the upper quarter in a slightly curved line to an acute base, strongly undulate, penninerved (lateral nerves 12 to 15 on each side, spreading, anastomosing close to margin in a series of broad loops); flowers in short racemes or fascicles, the axis up to 2.5 cm. long, the pedicels 3 to 5 mm. long; calyx tube cylindric, about 2.5 cm. long, 4 to 5 mm. wide at throat; sepals oblong-lanceolate, 2 to 2.5 cm. long, 5 to 7 mm. wide, obtuse or subacute; petals similar and nearly equal to the sepals; corona filaments in a single series, subdolabriform, 1.5 cm. long, the dilated portion minutely tuberculate; operculum borne near the base of the tube, filamentose,

the filaments linear-falcate, about 2 mm. long, erect; ovary oblong, 9-grooved.

TYPE LOCALITY: Ireng River Valley, British Guiana.

ILLUSTRATION: Trans. Linn. Soc. II. 6: *pl.* 3. 1901.

DISTRIBUTION: Known only from the type locality.

BRITISH GUIANA: Ireng River Valley, *McConnell & Quelch 207* (K, type).

This species, known apparently only from this single collection, is readily distinguished by the cuneate-oblong leaves with an undulate margin. This and *P. spicata* are the only nonscandent representatives of *Botryastrophea*.

345. *Passiflora fuchsiiflora* Hemsl. in Hook. Icon. Pl. 26: *pl.* 2553. 1898.

Woody vine with well developed tendrils, glabrous throughout; stipules linear, 7 to 9 mm. long, 1.5 mm. wide, acuminate; petioles up to 8 cm. long, biglandular at apex; leaves broadly ovate or suborbicular, 10 to 12 cm. long, 8 to 10 cm. wide (or larger?), obtuse or emarginate at apex, truncate at base, penninerved (lateral nerves arcuate, 5 to 7 to a side), thick-coriaceous, lustrous above, bluish glaucous beneath; flowers borne in dense clusters or short racemes on the old wood (10 to 30 flowers to a cluster, the rachis up to 2.5 cm. long, bracteolate), orange-yellow, fragrant, the pedicels about 1 cm. long; calyx tube cylindric, 3 to 5 cm. long, 6 to 9 mm. wide, slightly narrowed toward base; sepals lanceolate, about 2 cm. long and 6 mm. wide, obtusish; petals similar and subequal to the sepals; corona filaments in 3 series, the outermost subdolabriform, about 1 cm. long, those of the 2 succeeding series tuberculiform, 0.5 mm. long or less; operculum borne near the base of the tube, erect, about 8 mm. high, membranous, fimbriate; gynophore very slender, sulcate in upper third; ovary narrowly obovoid, glabrous.

TYPE LOCALITY: Demerara River, British Guiana.

ILLUSTRATION: Hook. Icon. Pl. 26: *pl.* 2553.

DISTRIBUTION: Surinam and British Guiana.

SURINAM: Upper Surinam River, *B. W. 5365* (Ut). Gonini River, *Gonggrijp 64*, in part (Ut).

BRITISH GUIANA: Demerara River, *Jenman 6540* (B, BG, K, type, Y); *Abraham 232* (Y).

346. *Passiflora cauliflora* Harms, Verhandl. Bot. Verein. Brandenburg 48: 185. 1906.

Scandent shrub, glabrescent throughout except the ovary; petioles about 3 cm. long, biglandular near apex; leaves oblong, 15 to 18 cm. long, 6 to 10 cm. wide, obtusely acuminate or acute, rounded at base, penninerved (principal lateral nerves 9 to 11 to a side, prominent beneath), thick-coriaceous, with a dark, thickened band at the margin; flowers "brown-yellow," borne in axillary fascicles, the rachis nodulose, up to 2 cm. long, the pedicels about 3 mm. long; calyx tube cylindric, 1.5 to 2 cm. long, 3 to 4 mm. in diameter; sepals oblong, about 2 cm. long and 6 mm. wide, obtuse; petals similar to the sepals; corona filaments in 3 series, the outermost subdolabriform, 1.2 to 1.5 cm. long, those of the 2 inner series narrowly linear, 2 to 3 mm. long; operculum borne at middle of tube, erect, about 1 cm. high, cleft in the upper third into 5 linear segments; ovary narrowly obovoid, finely and softly ferruginous-tomentellous.

TYPE LOCALITY: Cerro de Escalera, Department of Loreto, Peru.

DISTRIBUTION: Amazonian Peru.

PERU: San Martín: Zepelacio, *Klug 3469* (N).—Loreto: Cerro de Escalera, near Tarapoto, *Ule 6679* (B, type, Go). Mouth of Río Santiago, *Tessmann 4588* (B).

This is very similar to *P. skiantha*, described from the same general locality. Both have an unusual operculum, this being longer than in most species of *Botryastrophea*, and cleft into five linear segments. In *P. cauliflora* the operculum is tubular in the lower two-thirds, cleft only at the apex, whereas in *P. skiantha* the operculum is cleft nearly to its base. Other differences between the two are the shorter calyx tube and pubescent ovary of *P. cauliflora*.

347. *Passiflora skiantha* Huber, Bol. Mus. Goeldi 4: 591. f. 5. 1906.

Scandent shrub, glabrous throughout; petioles about 1 cm. long, biglandular at apex; leaves elliptic, up to 17 cm. long and 9.5 cm. wide, abruptly acute or acuminate at apex, rounded at base, penninerved (principal lateral nerves 4 or 5 to a side), membranous; flowers in short, dense fascicles, the rachis 1 to 2 cm. long, the pedicels about 5 mm. long; calyx tube cylindric, 3 to 3.5 cm. long, 6 to 8 mm. in diameter, slightly ventricose at base; sepals oblong, 2.5 to 3 cm. long, about 8 mm. wide, obtuse, at length reflexed; petals similar to but slightly narrower than the sepals; corona filaments in 4 series,

the outermost spatulate, about 1.5 cm. long, those of the second series 4 mm. long, slightly dilated at apex, those of the 2 inner series filiform, 2 mm. long; operculum borne at middle of tube, deeply cleft into 5 linear filaments about 1.5 cm. long; ovary ellipsoidal, glabrous; fruit ovoid, about 6.5 cm. long; seeds ovate, about 8 mm. long, 5 mm. wide, "transversely rugose."

TYPE LOCALITY: Cerro de Canchahuayo, Peru.

ILLUSTRATION: Bol. Mus. Goeldi 4: 592. f. 5.

DISTRIBUTION: Known only from the type locality, in northern Peru.

PERU: Loreto: Cerro de Canchahuayo, *Huber 1424* (Go, type).

This is similar to *P. cauliflora*, as already noted.

348. ***Passiflora longiracemosa*** Ducke, Archiv. Jard. Bot. Rio de Janeiro 3: 221. pl. 23. 1922.

High climbing, woody vine, with well developed tendrils, essentially glabrous throughout; stipules soon deciduous; petioles 2 to 9 cm. long, biglandular at apex, the glands sessile; leaves variable, ovate-orbicular to lance-oblong, ranging from the length and width being subequal to the length twice the width, up to 15 cm. long and wide, obtuse and emarginate at apex, shallowly cordate, penninerved (principal lateral nerves 5 to 7 to a side), thick-coriaceous, lustrous above, glaucous-pruinose beneath; inflorescence racemose, the racemes 20 to 60 cm. long, horizontally spreading, floriferous nearly to base, the pedicels 1.5 to 3 cm. long, subpendulous; flowers purplish, "coral pink"; calyx tube cylindric, 3 to 5 cm. long, 8 to 9 mm. in diameter, ventricose at base; sepals linear-oblong, 1 to 1.5 cm. long, 4 to 5 mm. wide, obtuse; petals slightly shorter and narrower than the sepals; corona filaments in 2 series, the outer filiform, 3 to 5 mm. long, violet at tips, the inner a ridge of minute, dark violet tubercles at throat of tube; operculum borne near base of tube, membranous, erect, about 1 cm. high, fimbriate in upper third; ovary obovoid, glabrous; fruit obovoid, about 5 cm. long, 3 cm. in diameter, 6-angled, rose-red; the pericarp hard; seeds obovate, about 7 mm. long and 3.5 mm. wide, coarsely reticulate.

TYPE LOCALITY: Lago do Salgado, near Rio Trombetas, Pará, Brazil.

ILLUSTRATION: Archiv. Jard. Bot. Rio de Janeiro 3: pl. 23. 1922.

DISTRIBUTION: British Guiana and Amazonian Brazil.

BRITISH GUIANA: Kukenam River, *Im Thurn* 84 (BG, BM, K, N). Mt. Roraima, *G. H. H. Tate* 207 (Y).

BRAZIL: Amazonas: Rio Branco, *Kuhlmann* 2803 (Bo, Go, K, N, S, Ut).—Pará: Lago do Salgado, near Rio Trombetas, *Ducke* 16968 (B, G, Gen, Go, type, N, S). Upper Cupary River, *Krukoff* 1141 (Gen, Y).

The foliage of *P. longiracemosa* is much like that of *P. fuchsii-flora*, the shape of the leaves showing the same variation. The arrangement of the inflorescence of the two is very different. From other species with a racemose inflorescence *P. longiracemosa* is readily distinguished by the very thick leaves, which are strongly glaucous beneath.

349. *Passiflora securiclata* Mast. Kew Bull. 1893: 12. 1893.

Tacsonia spinescens Klotzsch in Schomb. Reise Brit. Guian. 1168. 1848, name only.

Passiflora retrorsa Killip, Journ. Wash. Acad. Sci. 14: 116. 1924.

Subscandent, glabrous shrub, the tendrils usually reduced to recurved spines 1 to 1.5 cm. long; stipules setaceous, soon deciduous; petioles 1 to 1.5 cm. long, those of reduced leaves on floriferous branches 2 to 4 mm. long; leaves of main branches narrowly oblong, ovate-oblong, or oblong-lanceolate, 6 to 12 cm. long, 2 to 5.5 cm. wide (those of floriferous branches oval, 2.5 to 3.5 cm. long, 1.5 to 3 cm. wide), obtuse, usually emarginate, rarely bluntly short-acuminate, rounded at base, penninerved (principal lateral nerves 8 or 9 to a side), plainly reticulate-veined, coriaceous or subcoriaceous, concolorous, lustrous on both surfaces; inflorescence in pseudoracemes, the flowering branches 15 to 50 cm. long, slender, sometimes bearing a few reduced blades or more, usually the leaves reduced to spinelike petioles, the pedicels 5 to 10 mm. long, very slender; flowers red; calyx tube cylindric, 2 to 4 cm. long, 3 to 5 mm. wide at throat, ventricose at base; sepals narrowly oblong, 1.5 to 2 cm. long, 3 to 4 mm. wide, obtuse; petals similar to the sepals, slightly shorter and narrower; corona filaments in 2 series, the outer dolabriform, 3 to 4 mm. long, verrucose along one side, the inner filiform, about 0.8 mm. long, capitellate; operculum borne near base of tube, membranous, erect, about 1 cm. long, fimbriate in upper half; ovary ellipsoidal, minutely puberulent.

TYPE LOCALITY: Rupununi River, British Guiana.

DISTRIBUTION: Eastern and southern Venezuela, British Guiana and northern Brazil.

BRITISH GUIANA: *Schomburgk* 403 (K). Rupununi River, *Jenman* 5535 (K, type); *Schomburgk* 377 (B, type of *Tacsonia spinescens*). Nappi River, Kanuku Mountains, *Myers* 5374 (K).

VENEZUELA: Banks of Río Orinoco, *Chaffanjon* (P).—Delta Amacuro: Vuelta Triste, Río Manino, *Bond, Gillin & Brown* 147 (Ph, type of *P. retrorsa*).—Angostura: Ciudad Bolívar, *Holt & Gehriger* 196 (N, Y).—Amazonas: Río Cassiquiare, *Humboldt & Bonpland* (BW, No. 12394). San Carlos, *Schwyn* 711 (B). Puerto Ayacucho, *Holt & Blake* 800 (N).

BRAZIL: Amazonas: Rio Branco, *Ule* 7707 (B).

In the type specimens of *P. securiclata* and *P. retrorsa* the flowers are detached, and an accurate description of the inflorescence has not been possible until the more adequate material collected by the National Geographic Society's expedition to Venezuela became available. There is a general resemblance between this species and *P. spinosa*, but the leaves are much blunter and of thinner texture and the corona filaments are dilated.

350. *Passiflora spicata* Mast. in Mart. Fl. Bras. 13, pt. 1: 576. pl. 109. 1872.

Erect shrub, the tendrils reduced to spines; plant essentially glabrous throughout except the flowers; stipules soon deciduous; petioles 0.5 to 1 cm. long, biglandular at apex, the glands slightly elevated; leaves oblong, 10 to 15 cm. long, 5 to 8 cm. wide, abruptly acuminate (tip about 1 cm. long), rounded at base, penninerved (principal lateral nerves 5 or 6 to a side), coriaceous or subcoriaceous; inflorescence pseudoracemose, the rachis up to 6 cm. long, 4–6-flowered, subangular, the pedicels up to 5 mm. long; flowers scarlet; calyx tube cylindric, 3 to 3.5 cm. long, 0.8 to 1 cm. wide at throat, ventricose at base, densely rufo-tomentulous; sepals oblong, 2 to 2.5 cm. long, 8 to 10 mm. wide, obtuse, subcoriaceous; petals slightly shorter and narrower than the sepals; corona filaments in 3 series, the outermost falcate, strongly dilated at middle, 8 to 10 mm. long, smooth at margin, those of the 2 inner series liguliform, 4 to 5 mm. long; operculum borne near base of tube, about 10 mm. high, filamentose nearly to base; ovary oblong, villosulous.

TYPE LOCALITY: Rio Japurá, Amazonas, Brazil (type collected by Martius).

ILLUSTRATION: Mart. Fl. Bras. 13, pt. 1: pl. 109.

DISTRIBUTION: Upper Amazon basin, Brazil.

BRAZIL: Amazonas: Rio Putumayo, *Jobert* in 1877-78 (P).

This rare species is best distinguished from its near relatives by the very fleshy flowers, which have a rather wide tube.

351. *Passiflora Holtii* Killip, sp. nov.

Frutex subscandens, cirrhis tenuibus, ubique ovario excepto glaberrimus; folia ovata vel ovato-lanceolata, caudato-acuminata, valde reticulata, subcoriacea; inflorescentia pseudoracemosa; calycis tubus anguste cylindricus, sepalis petalisque anguste oblongis, obtusis; coronae filamenta biseriata, exteriora filiformia, interiora capillacea, operculum usque ad basin filamentosum, filamentis erectis; ovarium anguste ovoideum, rufo-sericeum.

Subscandent shrub, the tendrils slender but well developed; plant glabrous throughout, except the ovary; stipules soon deciduous; petioles 3 to 5 mm. long, biglandular at apex, the glands scarlike, inconspicuous; leaves ovate or ovate-lanceolate, 12 to 15 cm. long, 6 to 8 cm. wide, caudate-acuminate (tip about 1.5 cm. long), rounded, occasionally suboblique, at base, penninerved (principal lateral nerves 6 or 7 to a side), conspicuously reticulate-veined, entire, subcoriaceous, lustrous; inflorescence pseudoracemose, the rachis 15 to 30 cm. long, floriferous only above middle, bearing a few abortive leaves, the pedicels 1 to 1.5 mm. long, thick, erect; calyx tube narrowly cylindric, 3.5 cm. long, 4 to 6 mm. in diameter, ventricose at base; sepals narrowly oblong, about 2 cm. long and 5 mm. wide, obtuse; petals similar and equal to the sepals; corona filaments in 2 series, the outer filiform, about 2.5 mm. long, the inner capillary, about 1 mm. long; operculum borne just below middle of tube, erect, filamentose to base, the filaments 4 to 5 mm. long; gynophore slender, 5 cm. long; ovary narrowly ovoid, rufo-sericeous.

Type in the United States National Herbarium, No. 1,472,096, collected at Cucuhy, Rio Negro, State of Amazonas, Brazil, altitude about 117 meters, February 5, 1930, by E. G. Holt and W. Gehriger (No. 384).

The National Geographic Society's expedition to the little explored region where the frontiers of Brazil, Venezuela, and Colombia meet brought back an exceptionally interesting series of *Passifloraceae*. Although this is the single novelty in the collection, the other specimens all represent species that are very little known.

Passiflora Holtii is related to *P. spicata* and *P. pyrrhantha*. From the former, which it resembles in having very short petioles and long-tipped leaves, it differs in the outer corona filaments being

filiform rather than falcate-dilated, and in having a more slender calyx tube and longer racemes. From *P. pyrrhantha*, which also has leaves of much the same shape, it differs in the shorter petioles, narrower, glabrous calyx tube, and more slender sepals and petals.

352. *Passiflora pyrrhantha* Harms, Notizbl. Bot. Gart. Berlin 9: 977. 1926.

Scandent shrub with a few tendrils, the younger branches puberulous; stipules soon deciduous; petioles 1 to 3 cm. long, biglandular at apex; leaves ovate or ovate-oblong, 10 to 16 cm. long, 6 to 10 cm. wide, acuminate at apex, rounded at base, penninerved (principal lateral nerves 5 or 6 to a side), remotely denticulate in upper half, subcoriaceous, glabrous; inflorescence racemose, the racemes 7 cm. long or more, short-velutinous, the pedicels 2 to 3 mm. long, thick; calyx tube cylindric, 4.5 to 5 cm. long, nearly 2 cm. in diameter at throat, ventricose at base, appressed-puberulous, fire-red; sepals narrowly oblong, about 3 cm. long, 1 cm. wide, obtuse, orange at middle without; petals subequal to the sepals, fire-red; corona filaments in 2 series, the outer about 6 mm. long, slightly falcate-dilated, citron-yellow, the inner subulate, very short; operculum borne at middle of tube, erect, filamentose nearly to base, the filaments about 1.3 cm. long; ovary ovoid, velutinous.

TYPE LOCALITY: Puerto Meléndez, Pongo de Manseriche, Loreto, Peru.

DISTRIBUTION: Known only from the type locality, in northern Peru.

PERU: Loreto: Puerto Meléndez, Pongo de Manseriche, *Tessmann* 4770 (B, type, N).

353. *Passiflora spinosa* (Poepp. & Endl.) Mast. Trans. Linn. Soc. 27: 630. 1871; in Mart. Fl. Bras. 13, pt. 1: 576. 1872.

Tacsonia spinosa Poepp. & Endl. Nov. Gen. & Sp. 2: 59. pl. 181. 1835.

Distephana spinosa M. Roemer, Fam. Nat. Syn. 2: 199. 1846.

(?) *Tacsonia coccinea* Barb. Rodr. Vellosia 1: 23. 1891; 3, pt. 1: pl. 11. 1891. Not *Passiflora coccinea* Aubl.

Woody vine, the tendrils often reduced to straight or recurved, stout spines up to 1 cm. long; plant glabrous throughout, except the ovary; stipules soon deciduous; petioles 1.5 to 2.5 cm. long, thick, biglandular at apex; leaves oblong, 10 to 17 cm. long, 3 to 9 cm. wide, acuminate, rounded at base, penninerved (principal lateral

nerves 7 or 8 to a side), coriaceous, lustrous; inflorescence racemose or pseudoracemose, the racemes up to 25 cm. long, slender, sometimes foliferous, the pedicels solitary or in pairs, 3 to 5 mm. long; calyx tube cylindric, 4 to 5 cm. long, 6 to 8 mm. wide, slightly ventricose at base, bright red without, paler within; sepals narrowly oblong, about 1 cm. long, 3 mm. wide, obtuse, bright red; petals similar and subequal to the sepals; corona filaments in 2 series, yellow, the outer dolabriform, 3.5 to 4 mm. long, dilated at middle, filiform at apex, slightly verrucose along one margin, the inner filaments filiform, about 1 mm. long; operculum borne about 1 cm. above base of tube, erect, membranous, pinkish yellow, filamentose in upper third; ovary narrowly oblong, minutely puberulent.

TYPE LOCALITY: Yurimaguas, Peru.

ILLUSTRATIONS: Poepp. & Endl. Nov. Gen. & Sp. 2: *pl.* 181; (?) *Vellosia* 3, *pt.* 1: *pl.* 11.

DISTRIBUTION: Colombia; Amazon basin of Peru and Brazil, at low elevations.

COLOMBIA: *Mutis* 3461 (Ma).—Santander: Margarita Creek, Magdalena Valley, *Haught* 1430 (N).—Antioquia: Guadual, *Kalbreyer* 1402 (B, K).

PERU: Loreto: Yurimaguas, *Poeppig* D.2187 (V, type). Between Yurimaguas and Balsapuerto, *Killip & Smith* 28147 (N, Y). Caballo-cocha, Río Amazonas, *L. Williams* 2458 (F, N). Upper Río Nanay, *L. Williams* 1134 (N).

BRAZIL: Amazonas: Manaos, *Spruce* 1394, in part (K, P). Río Juruá, *Ule* 5110 (B), 5832 (B, Gen, Go). Caracarahy, Rio Branco, *Kuhlmann* 3035 (B, Go, N).—Pará: Rio Branco de Obidos, *Ducke* 21322 (B, N, Ut).

This is the earliest described species within the subgenus *Botryastrophea*, and here the first note was made of the frequent reduction of tendrils to spines. I can find no differences between the Colombian specimens listed above and typical *P. spinosa* from northern Peru. This constitutes an interesting extension of range.

Ducke 21322 agrees closely with the illustration of *Tacsonia coccinea* Barb. Rodr. (which should not be confused with *Passiflora coccinea* Aubl.), but I am not satisfied that they should be referred to *P. spinosa*. The flowers are borne on short branches, not in elongate racemes; their structure, however, appears to be identical with that in *P. spinosa*.

354. *Passiflora Rusbyi* Mast. Bull. Torrey Club 17: 282. 1890.

Scandent shrub, the tendrils present or reduced to short spines; plant glabrous throughout, except the flowers; petioles up to 2.5 cm. long, glandless; leaves oblong-lanceolate, 10 to 18 cm. long, 4 to 7 cm. wide, acuminate, rounded at base, penninerved (principal lateral nerves 7 to 9 to a side), membranous; inflorescence pseudoracemose, the rachis up to 25 cm. long, floriferous in upper third, bearing reduced, linear-oblong or linear-spatulate leaves about 1 cm. long, and 2.5 mm. wide; calyx tube narrowly cylindric, 2 to 3 cm. long, puberulent, at length glabrate without, red or red-orange; sepals oblong, 1 to 1.3 cm. long, obtuse, coriaceous, red or red-orange; petals slightly shorter than the sepals; corona filaments in 2 series, the outer narrowly linear, 4 to 5 mm. long, capitellate, yellow, the inner filiform, about 2 mm. long; operculum borne just below middle of tube, membranous, erect, filamentose in upper third; ovary oblong, puberulent.

TYPE LOCALITY: Junction of Beni and Madre de Dios rivers, Bolivia.

DISTRIBUTION: Upper Amazon basin, Bolivia and Brazil.

BOLIVIA: Beni: Junction of Beni and Madre de Dios rivers, *Rusby* 2089 (Y, type).

BRAZIL: Amazonas: Humaytá, Rio Madeira basin, *Krukoff* 6191 (Y), 6503 (Y), 6759 (Y). Rio Embira, *Krukoff* 4941 (N).—Acre: Rio Macauhan, *Krukoff* 5730 (Gen, Y).

In this species the leaves are shaped much like those of *P. spinosa*, though they are of much thinner texture. The outer corona filaments are merely capitellate at the apex, not strongly hatchet-shaped as in *P. spinosa*. Petiolar glands, quite evident in *P. spinosa*, are wanting in *P. Rusbyi*. The flowers are said to be orange, whereas in *P. spinosa* they are bright red.

Krukoff 4941, in fruit, is tentatively referred here. The leaves are proportionately narrower than in the type, about 20 cm. long and 5 cm. wide. The fruit is subglobose, 4 to 5 cm. in diameter, yellowish, and glabrescent. The obovate, reticulate seeds are very large (14 mm. long, 9 mm. wide).

RELATIONSHIP UNCERTAIN

355. *Passiflora heterohelix* Killip, sp. nov. Figure 2, a.

Planta herbacea, scandens, glaberrima; cirrhi axillares et in pedunculis; stipulae setaceae; petioli biglandulosi; folia oblonga vel

oblongo-lanceolata, integerrima, penninervia; pedunculi tenues, bini, profunde bifidi, ramo altero florifero, altero cirrhoso, pedunculo altero simplici, ecirrhoso; bracteae 3, liberae, foliaceae, anguste ovatae; calycis tubus patelliformis; sepala elliptico-ovata, aristata; petala sepalis paullo breviora; coronae filamenta pauca, linearia, 1-seriata; staminum filamenta antheris breviora; ovarium anguste ellipsoideum.

Herbaceous vine, glabrous throughout; stem slender, terete, striate; tendrils slender, of 2 forms, one axillary on the main stem, the other on one of each pair of peduncles; stipules setaceous, 6 to 8 mm. long, subpersistent; petioles 8 to 10 mm. long, slender, canalliculate on the upper side, biglandular just below the apex, the glands sessile, 1 to 1.5 mm. in diameter; leaves oblong or oblong-lanceolate, 4 to 11 cm. long, 1.5 to 5 cm. wide, cuspidate-acuminate, subrotund at base, entire, obscurely glandular at margin, penninerved (secondary nerves about 9 to a side), conspicuously reticulate, coriaceous, lustrous on both surfaces, drying light green; peduncles slender, 3.5 to 7 cm. long, 1-flowered, in pairs, one simple, ecirrhose, the other bifid, with 1 branch floriferous and the other a tendril; bracts 3, free to the base, narrowly ovate, 2 to 3 cm. long, 0.5 to 1 cm. wide, obtuse at the apex, acute and sessile at the base, conspicuously reticulate, sparingly and obtusely glandular at the margin, chartaceous, sublustrous; calyx tube very short, barely 1 mm. long, about 3 mm. wide; sepals elliptic-ovate, about 1.5 cm. long, 3 to 6 mm. wide, obtuse, 3-nerved (lateral nerves obscure), the midnerve terminating dorsally in a filiform awn 2.5 to 3 mm. long; petals slightly shorter and narrower than the sepals, obtuse, very thin; corona consisting of a few linear filaments 2 to 3 mm. long, apparently in a single series; filaments of stamens 3 mm. long, the anthers 6 to 7 mm. long; gynophore about 6 mm. long; ovary narrowly ellipsoidal.

Type in the Herbarium of Field Museum of Natural History, No. 622,608, collected at Tarapoto, Department of Loreto, Peru, altitude 750 meters, December, 1929, by Llewelyn Williams (No. 5902). Duplicate in the United States National Herbarium (No. 1,470,181).

DISTRIBUTION: Known only from the type locality, in northern Peru.

Quite possibly this curious plant belongs to an undescribed genus of Passifloraceae, but the flowers are young and most of them are in such poor condition that it is impossible to determine the nature or position of the genital organs, and I am therefore reluctant to base a

new genus upon it. There appear to be five stamens, with thick filaments, borne directly upon the calyx, and three styles. One flower, with a definite gynophore, shows no vestiges of stamens; another, with five protuberances on the floor of the calyx, which may be the remnants of stamens, lacks a gynophore. It is impossible to say whether this is due to some of the parts having become detached or whether the flowers are unisexual, like those of many species of the Old World genus *Adenia*.

From all members of *Passiflora* this is at once differentiated by the tendrils and peduncles. The large bracts are like those of certain granadillas, notably *P. nitida* and *P. riparia*, though of a rather different texture.

It is to be hoped that, as a result of the intensive botanical exploration of northern Peru, plants with more fully developed flowers will be collected.

DOUBTFUL SPECIES

Passiflora maculata Scan. in Colla, Hort. Ripul. 101. 1824.—This was described from a cultivated plant of unknown origin. De Candolle gave a slightly amplified description in the *Prodromus* (p. 324), adding "In Curaçao. Pluk. t. 210, f. 3.—An *P. minima* Lin.(?) v. s." The Plukenet figure, accompanied by the description "*Flos Passionis Curassavicus* . . .," almost certainly represents *P. suberosa*, though no petiolar glands are shown. This inclusion of the Plukenet reference is apparently the only reason for ascribing *P. maculata* to Curaçao. The specimen labeled *P. maculata* in the De Candolle Herbarium, probably type material, is well preserved, and clearly does not belong to any of the species treated in the present monograph. Its vegetative parts are exceedingly well matched, strange to say, by a specimen, without flowers, in the United States National Herbarium, bearing the data "Sea beach, Brunswick Co., N. C., Aug. 5, 1885, *G. McCarthy*." From the De Candolle specimen I have drawn up the following description:

Herbaceous vine; stem angulate, sparingly pilose or glabrescent; stipules setaceous, about 5 mm. long; petioles up to 1.5 cm. long, glandless; leaves 3-lobed about four-fifths their length (upper ones less deeply lobed; lobes oblong-lanceolate, 5 to 6 cm. long, 1 to 2 cm. wide, the lateral often divergent at nearly a right angle from the middle lobe), subcoriaceous, bright green and glabrous above, paler and pilosulous on the nerves beneath, white-maculate; peduncles subequal to the petioles; bracts setaceous; flowers about 1.5 cm. wide;

petals none; corona filaments apparently in a single series; operculum membranous, plicate(?).

2. **TETRASTYLIS** Barb. Rodr. Rev. Engenharia 4: 260. 1882.

Passiflora Sect. *Tetrastylis* Harms, in Engl. & Prantl, Pflanzenfam.

1. Aufl. 1. Nachtr. 256. 1897.

Woody or herbaceous vines, bearing simple, axillary tendrils; stipules present; leaves alternate, petiolate; flowers in axillary racemes, or solitary or in pairs in the axils of the leaves; calyx tube short, patelliform; sepals 5; petals 5, alternate with the sepals, inserted at margin of tube; corona filamentose; operculum membranous; gynophore elongate, curved; stamens 5, the filaments monadelphous, united beyond the gynophore into a broad membrane, only the tips free; anthers oblong, bifid at base; styles 4, united at very base; ovary oblong, stipitate, obtusely 4-angled; ovules on 4 parietal placentae.

TYPE SPECIES: *Tetrastylis montana* Barb. Rodr.

The genus *Tetrastylis* was established by Barbosa Rodriguez in 1882, and to it was assigned a single Brazilian species, *Tetrastylis montana* Barb. Rodr. The description of the plant was very complete and was accompanied by an excellent illustration. The principal points of difference between this genus and *Passiflora*, as noted by Barbosa, were: *Tetrastylis*: four styles; gynophore curved; stamen filaments united beyond gynophore, only the extremities free; four placentae; *Passiflora*: three styles; gynophore straight; stamen filaments free from gynophore to extremities; three placentae.

In the first edition of the *Natürlichen Pflanzenfamilien* Harms recognized *Tetrastylis* as a valid genus, placing it immediately before *Passiflora*. In the supplement to this work he created the section *Tetrastylis*, in *Passiflora*, for this species, a course followed in the second edition.

REFERENCE: Killip, *Tetrastylis*, a genus of Passifloraceae, Journ. Wash. Acad. Sci. 16: 365-369. 1926.

Flowers in axillary racemes; leaves entire, coriaceous; stipules filiform, soon deciduous; petioles glandular at base; woody vine (Brazil).....1. *T. ovalis*.

Flowers solitary or in pairs in the axils of the leaves; leaves 3-lobed, membranous; stipules semi-ovate, persistent; petioles glandular at middle; herbaceous vine (Costa Rica).....2. *T. lobata*.

1. *Tetrastylis ovalis* (Vell.) Killip, Journ. Wash. Acad. Sci. 16: 367. 1926.

Passiflora ovalis Vell. Fl. Flumin. 9: pl. 75. 1827 (figure only); ex M. Roemer, Fam. Nat. Syn. 2: 168. 1846.

Passiflora silvestris Vell. sensu Mast. in Mart. Fl. Bras. 13, pt. 1: 620. pl. 127. 1872. Not *P. silvestris* Vell.

Tetrastylis montana Barb. Rodr. Rev. Engenharia 4: 260. 1882.

Woody vine, glabrous throughout; stem terete, longitudinally sulcate, suberose below; stipules setaceous, 8 to 10 mm. long, soon deciduous; petioles 2.5 to 4 cm. long, biglandular at base, the glands orbicular, about 1.5 mm. in diameter, sessile; leaves elliptic or elliptic-oblong, 6 to 10 cm. long, 3 to 5.5 cm. wide, not lobed, abruptly acuminate at apex, acutish at base, entire, usually cartilaginous at margin, 1-nerved (principal lateral nerves 7 or 8 pairs, arcuate), conspicuously reticulate-veined, coriaceous, sublustrous; flowers in axillary racemes up to 75 cm. long, the peduncle short, about 1 cm. long, stout, 2-flowered, the pedicels 1.5 to 4 cm. long, articulate above middle; bracts and bractlets setaceous, 1 to 2 mm. long, soon deciduous; calyx tube 3 to 5 mm. long; sepals oblong, 2.5 to 3 cm. long, 5 to 7 mm. wide, obtuse, ecoriaceous, subcoriaceous, dull red without (when dry), paler within, longitudinally streaked with red; petals oblong or lance-oblong, 1.5 to 2 cm. long, 3 to 5 mm. wide, obtuse, membranous, whitish, longitudinally streaked with red both without and within; corona filaments narrowly liguliform, in 2 series, the outer about 1 cm. long, the inner half as long; operculum membranous, closely plicate, incurved, crispate; limen annular, fleshy; gynophore about 2 cm. long; ovary oblong; fruit ovoid, 6 to 10 cm. long, 3.5 to 8 cm. wide; seeds obovate, 5 to 7 mm. long, 4 to 5 mm. wide, reticulate.

TYPE LOCALITY: Brazil.

ILLUSTRATIONS: Vell. Fl. Flumin. 9: pl. 75; Mart. Fl. Bras. 13, pt. 1: pl. 127; Rev. Engenharia 4. pl. s. n.

DISTRIBUTION: Common about Rio de Janeiro, Brazil; also in the states of Bahia and Minas Geraes.

BRAZIL: Bahia: *Blanchet 1708* (BM).—Minas Geraes: *St. Hilaire 1689* (P).—Rio de Janeiro: *Gavea, Glaziou 7859* (B, Cop, K, P). *Restinga de Copacabana, Glaziou 14873* (P); *Luschnath* (Brux). *Serra da Estrella, Glaziou 8269* (B, Cop, P); *Brade 10505* (B). Rio de Janeiro, *Riedel & Luschnath 720* (N); *Peckholt 7* (B); *De Moura 503* (B); *Glaziou 14854* (B, Cop, Gen, K, N, P). Corcovado, *Ducke*

& Kuhlmann 16581 (B, N, Ut). Between Paineiras and Jardim Botânico, L. B. Smith 1415 (G, N).

Velloso's figure of *P. ovalis* was unaccompanied by a description or explanatory notes, and under the rules of nomenclature this does not constitute valid publication. Roemer, however, gave a detailed description of Velloso's plate, and the species must be considered to date from the publication of this monograph in 1846. In the *Flora Brasiliensis* species No. 77 is given as *Passiflora silvestris* Vell. and Velloso's plate 74, bearing this name, is cited. The description which Masters then gives of this species applies in general, however, to Velloso's plate 75 (*P. ovalis*), and the figure by which Masters illustrates *Passiflora silvestris* (pl. 127) agrees almost exactly with Velloso's *P. ovalis*, and bears no resemblance to the plate of *P. silvestris* of Velloso. The inflorescence as shown by Masters' plate is an elongate raceme, and the leaves are narrowed at the base, with the petioles biglandular. The detailed enlargement of the flowers shows four styles but a straight gynophore with the staminal structure as in true *Passiflora*. This conventionalized flower sketch I believe was made from two different plants, one true *Tetrastylis ovalis*, the other a species of the subgenus *Granadilla*.

Masters merely lists *Passiflora ovalis* Vell. among doubtful species, stating that only a fruiting specimen was figured.

The identity of *P. silvestris* Vell. (pl. 74) is uncertain. It may well be the plant later described as *P. Galbana*.

2. *Tetrastylis lobata* Killip, Journ. Wash. Acad. Sci. 16: 368. 1926.

Stem stout, triangular, grooved, glabrous; stipules in pairs, semi-ovate, 5 to 15 mm. long, 3 to 8 mm. wide, aristate, entire; petioles 3 to 8 cm. long, canaliculate above, hispidulous, bearing near middle 2 subsessile saucer-shaped glands, a second pair occasionally present at base of blade, the glands 1 to 2 mm. in diameter; leaves 10 to 15 cm. long (along midnerve), 12 to 20 cm. wide (between apices of lateral lobes), 3-lobed half to two-thirds the length of the blade (lobes variable, oblong, oblong-lanceolate, or broadly ovate-lanceolate, 2.5 to 6 cm. wide, acuminate or acute), cordate, 3-nerved, entire or slightly undulate, membranous, dark green and minutely hispidulous with hooked hairs above, glabrous (occasionally slightly scabrous) and mottled with dull, dark red beneath; peduncles solitary or in pairs, 2 to 3.5 cm. long, glabrous or sparingly hispidulous; bracts setaceous, 2 to 3 mm. long, borne on lower half of peduncle; flowers 3.5 to 6 cm. wide; calyx tube patelliform, about 3 mm. long; sepals

oblong-lanceolate, 1.5 to 2.5 cm. long, 4 to 8 mm. wide, sparingly hispidulous and green without, glabrate and white, or pale rose, streaked longitudinally with violet within, terminating in a horn about 2 mm. long; petals ovate-lanceolate, 0.8 to 1.5 cm. long, 5 to 7 mm. wide, obtuse, streaked longitudinally with violet on both faces; corona filaments in a single series, filiform, narrowly ligulate, 1 to 2 cm. long; operculum membranous, deep red, strongly plicate, incurved, up to 5 mm. high, minutely denticulate; nectar ring annular, less than 0.5 mm. high; limen membranous, 1 to 2 mm. high, incurved, crenulate; gynophore about 1 cm. long; stamens united to within 3 mm. of their tips, forming a membranous androecium, the upper portion free from the gynophore; ovary narrowly ovoid, obtuse, tapering at base, glabrous; fruit obovoid, about 10 cm. long, 3 cm. in diameter, green, white-spotted; seed obovate.

TYPE LOCALITY: La Hondura, San José, Costa Rica.

DISTRIBUTION: Costa Rica, 200 to 1,600 meters altitude.

COSTA RICA: *Endres* 60 (V).—Limón: Plains of Zent, *Pittier* 16055 (BM, N), 16100 (BM).—San José: La Hondura, 1,200 to 1,400 meters, *Standley & Valerio* 51917 (N, type, Y). Santa María de Dota, *Standley* 41796 (N).—Cartago: Orosi, *Pittier* 16026 (N); *Standley* 39673 (N), 39720 (N), 39793 (N). La Estrella, *Standley* 39352 (N). El Muñeco, *Standley & Valerio* 51389 (N); *Standley & Torres* 51262 (K, N); *Standley* 33619 (N).—Guanacaste: Tilarán, *Standley & Valerio* 44479 (N), 46149 (N); *J. Valerio* 14 (N).

Two of these specimens (*Pittier* 16055 and *Valerio* 14) have leaves less deeply lobed than are those of the type, and the pubescence is rather denser. The general appearance of *Standley* 46149 is quite different, the leaves drying a lighter green and the lateral lobes being much reduced. The flowers of all the specimens cited seem the same, and the differences in vegetative characters are no greater than in many species of the family.

3. MITOSTEMMA Mast. Journ. Bot. Brit. & For. 21: 33. 1883.

Scandent shrubs(?); stipules filiform; leaves alternate, short-petioled; flowers solitary, in pairs, or usually in short, terminal or axillary racemes; bracts and bractlets subulate; flowers small, hermaphrodite; calyx much reduced; sepals 4; petals 4, similar to the sepals; corona filaments in 3 series, those of the outermost series subterete, those of the second narrowly linear, dilated at each side, the innermost filaments spatulate, fimbriate along margin in the upper part; operculum none; stamens 8 or 10, inserted on the floor of the calyx

near the base of the ovary, free, or united close to the base; anthers linear-oblong, 2-celled, versatile; gynophore erect; ovary 1-celled, with 4 parietal placentae; styles 4, distinct to the base; stigmas reniform-capitate; fruit ovoid.

TYPE SPECIES: *Mitostemma Glaziovii* Mast.

REFERENCE: Gontscharow, Bull. Jard. Princ. U. S. S. R. 26: 556-558. 1927.

Styles much longer than the ovary (British Guiana).

1. *M. Jenmanii*.

Styles shorter than the ovary (Brazil).

Ovary glabrous; leaves sharply acuminate at apex.

2. *M. Glaziovii*.

Ovary white-villous; leaves obtuse or obtusely acuminate at apex.

3. *M. brevifilis*.

Our knowledge of this genus is still altogether too imperfect, especially in regard to the shape of the corona filaments. The only adequate specimen in the United States National Herbarium is one of *M. Glaziovii*, and from that the description of the corona given above has been derived. The descriptions of the corona presented by Masters, Harms, and Gontscharow differ from each other in certain details. Masters amplified his Latin diagnosis of the corona thus: "The corona springs from the mouth of the very short flower-tube, and consists of a large number of separate, threadlike, thick processes arranged in a triple series; the outermost are terete, acute, fleshy, reddish orange, somewhat shorter than the petals; next to these is a series of lobes like those just described, but each has a membranous, lacerate wing on either side, so that the thick, fleshy thread is, as it were, a midrib between the two membranous wings; the third and innermost series consists of a number of oblong processes, wholly membranous, crisped, and lacerate at the edges." I believe the coronal structure is similar in all three species.

Mitostemma is even more like *Dilkea* than has been supposed; the presence of a well defined calyx tube to distinguish *Dilkea* cannot be relied upon, inasmuch as the sepals at length separate, leaving a very small calyx, which, as in *Mitostemma*, is not much more than the enlargement of the top of the peduncle.

1. *Mitostemma Jenmanii* Mast. Journ. Bot. Brit. & For. 21: 34. 1883.

Scandent shrub(?), glabrous throughout; tendrils few, stout; branches terete or subangular; petioles about 1 cm. long, suberose,

glandless; leaves oblong or oblong-obovate, 6 to 9 cm. long, 3 to 4.5 cm. wide, abruptly narrowed to an obtuse apex, rounded or acutish at base, entire, penninerved (principal lateral nerves 8 to 10 to a side), reticulate-veined with scarcely elevated veins, thick-coriaceous, sublustrous above, dull beneath; flowers about 4 cm. wide, in short, axillary racemes, the rachis scarcely 5 mm. long, the pedicels 5 to 8 mm. long, articulate near base; bracts setaceous, 1 to 2 mm. long, 2 borne at point of articulation, the third near base of peduncle; calyx tube short-campanulate; sepals oblong, about 2 cm. long, 0.6 cm. wide, obtuse, reddish orange; petals similar to and slightly shorter than the sepals; outermost filaments of the corona 8 to 10 mm. long, reddish orange, the inner ones slightly shorter, white; stamens 1 to 1.3 cm. long; ovary fusiform; styles longer than the ovary.

TYPE LOCALITY: Mazaruni River, British Guiana.

DISTRIBUTION: Known only from the type locality.

BRITISH GUIANA: Mazaruni River, *Jenman 622* (BG, K, type).

2. *Mitostemma Glaziovii* Mast. Journ. Bot. Brit. & For. 21: 34. 1883.

Dilkea Glaziovii Mast. ex Glaziou, Bull. Soc. Bot. France 56, Mém. 3: 313. 1909.

Scandent shrub, glabrous throughout; tendrils few, stout; stem terete, purplish; stipules filiform, about 4 mm. long; petioles 1 to 1.5 cm. long, stout, glandless; leaves oblong, 6 to 18 cm. long, 3.5 to 7 cm. wide, acute or abruptly acuminate, rounded at base, entire, penninerved (principal lateral nerves 9 to 11 to a side), conspicuously reticulate-veined, coriaceous, lustrous, without ocellae or occasionally with 2 glands at base; peduncles solitary, 2.5 to 4 cm. long, articulate below middle, slightly thickened toward apex; bracts setaceous, one about 3 mm. long, borne near base of peduncle, 2 half as long, at point of articulation; calyx tube short-campanulate, 8 to 10 mm. wide, introrse, green; sepals and petals similar and subequal, oblong, about 1.5 cm. long, 5 to 6 mm. wide, obtuse, white; outermost corona filaments reddish orange, about 7 mm. long, the others about 5 mm. long, white; stamens about 1 cm. long; gynophore 5 to 7 mm. long; ovary ellipsoidal, acute; fruit broadly ovoid, 2 cm. long or more, acutish.

TYPE LOCALITY: Near Rio de Janeiro, Brazil.

ILLUSTRATIONS: Engl. & Prantl, Pflanzenfam. 3, 6a: 72. f. 25; ed. 2, 21: 477. f. 218J.

DISTRIBUTION: Vicinity of Rio de Janeiro, Brazil.

BRAZIL: Rio de Janeiro: Lagôa dos Peixes, near Cabo Frio, *Glaziou 12741* (Gen, K, type, P); *Widgren 1165* (Cop, S). Corcovado, *Glaziou 6089* (Cop, P, S); *Nadeaud* in 1862 (P). Mundo Novo, *Kuhlmann 15328* (Bo, K, N, S, Ut).

3. *Mitostemma brevifilis* Gontsch. Bull. Jard. Bot. Princ. U. S. S. R. 26: 557. 1927.

Shrub 90 to 120 cm. high, the branchlets terete, glabrous; tendrils present; petioles 3 to 4.5 mm. long, glandless; leaves oblong-lanceolate, lanceolate, or oblanceolate, 5 to 14 cm. long, 3.5 to 5.5 cm. wide, obtuse or obtusely acuminate, rarely emarginate, narrowed at base, subrevolute, penninerved, coriaceous, glabrous; flowers solitary (or in racemes?); bracts linear-setiform, 2 to 3.5 mm. long; calyx tube broadly campanulate, very short; sepals 4, oblong, 1.5 to 1.7 cm. long, 6 mm. wide, obtuse, sericeo-puberulent, white; petals 4, similar to and slightly narrower than the sepals, white; corona "blue," the 2 outer series 8.5 to 9 mm. long, the innermost about 5 mm. long; stamens 8, the filaments about 8 mm. long, blue; ovary elliptic-oblong, white-villous; styles shorter than the ovary; fruit subglobose, 5 to 5.5 cm. long, about 3 cm. in diameter, densely velutinous.

TYPE LOCALITY: Rio Pardo, southern Brazil.

DISTRIBUTION: Known only from the type locality.

BRAZIL: Rio Grande do Sul: Rio Pardo, *Riedel 535* (K, type collection).

I am not certain that this inflorescence should be described as racemose. In the only specimen which I have seen the lower flowers are solitary in the axils of the leaves. Perhaps these racemes are floriferous branches bearing much reduced, caducous leaves.

4. *DILKEA* Mast. Trans. Linn. Soc. 27: 627. 1871.

Woody vines, subscandent shrubs, or small trees, without tendrils or rarely with a few poorly developed ones; leaves alternate, petiolate, simple, penninerved; bracts minute, subulate, borne near base of pedicels; flowers in axillary or terminal glomerules or short-spicate, rarely solitary, hermaphrodite, red or white; sepals 4 (or 5?), oblong, fleshy, united below middle when young to form a cylindric or funnel-shaped tube, at length separating to the base and readily deciduous, leaving a very small receptacle; petals 4 or 5, slender, free to the base; corona 2-ranked, the outer rank consisting of slender, free or nearly

free filaments, the inner tubular in the lower part, cleft above into floccose, crispate threads or into segments margined with such threads; operculum none; stamens 8, equal, hypogynous, free except at the very base; anthers linear or linear-oblong, versatile; ovary subsessile or short-stipitate, with 4 parietal placentae; styles 4, united below the middle, exserted; stigmas reniform-capitate; fruit globose or ovoid, the pericarp coriaceous; seeds 8 to 10, large, with a parchment-like covering.

TYPE SPECIES: *Dilkea retusa* Mast.

This genus apparently is confined to the little explored recesses of the Amazon basin, and our knowledge of it is still too imperfect to permit of more than a tentative treatment of the species. Although the genus itself is a well marked one, readily recognized among Passifloraceae by the conspicuous fringe of pale, crispate hairs on the second series of corona filaments, the species are for the most part poorly defined. Dr. Ducke, who after many years of travel in the upper Amazon region is more familiar with the living plants than anyone else, has recently made the interesting suggestion to me that *Dilkea* is a monotypic genus. I am inclined to think that further study and collecting will show that the four last species of the present treatment should be merged in one; the key to these, it will be observed, is a weak one. *Dilkea parviflora*, however, seems clearly distinct.

In describing *Dilkea* Masters treated two species, *D. retusa* and *D. acuminata*, and in the *Flora Brasiliensis* he added a third one, *D. Wallisii*. A fourth species was described by Barbosa Rodriguez in 1891, and a fifth one is proposed in the present paper.

According to Masters' illustration in the *Flora Brasiliensis* (pl. 106), *P. retusa*, *P. acuminata*, and *P. Wallisii* appear to have distinctive leaf outlines, but Ducke has observed (Archiv. Jard. Bot. Rio de Janeiro 3: 222. 1922; 5: 174. 1930) that *D. Wallisii* has heteromorphic foliage, and his No. 21307 shows this.

Masters' illustrations show rather prominent glands near the middle of the petioles, but in neither his generic nor his specific descriptions does he mention the presence of petiolar glands. In the material I have examined, including the types of two of Masters' species, glands normally are not present, though occasionally one or more of the petioles may bear a pair of scarlike glands.

Masters' description of the flower tube as cylindric, with the petals borne at its throat and the corona near its middle, is not substantiated by the specimens I have at hand. At first the sepals are

united below the middle to form a tube, but they soon separate and, together with the petals, stamens, and corona, fall off, leaving a very small receptacle and the persistent gynophore, ovary, and styles, the receptacle being little more than the slightly enlarged apex of the pedicel.

The number of sepals and petals is uncertain. In both his generic descriptions Masters says there are "4-5" of each, but he described *D. retusa* and *D. acuminata* as having five of each. The drawing of the flowers of *D. retusa* and *D. Wallisii* indicates that only four sepals and four petals are present; no flowers of *D. acuminata* are shown in the plate. Mr. N. Y. Sandwith, who has carefully examined the specimens at Kew for me, writes that two flowers of the type of *D. retusa* have five petals and apparently four sepals, and that the flowers of *D. acuminata* are so badly mutilated that no decision is possible. The well prepared specimens now in the United States National Herbarium all have four sepals and four petals, the two outer sepals being nearly twice as wide as the inner ones.

The difference in the description of the corona as given by Masters and as presented above is largely a matter of definition of the terms. (See the excellent drawing of *Dilkea Johannesii* var. *parvifolia* Hoehne, Comm. Linh. Tel. Matto Grosso, Anexo 5, Bot. pt. 5: pl. 111. 1915.)

Sepals not more than 1.5 cm. long; ovary subsessile (Peru).

1. *D. parviflora*.

Sepals 2 to 3 cm. long; ovary borne on a short gynophore.

Leaves cuneiform, truncate at the upper margin except for a short lobe at the center (Peru and Brazil).....2. *D. retusa*.

Leaves ovate, ovate-oblong, or oblanceolate, rounded or acuminate at apex.

Fruit ovoid, more than twice as long as wide (Brazil).

3. *D. Johannesii*.

Fruit globose or spherical.

Leaves oblanceolate or oblong-oblanceolate, more than 3 times longer than wide; sepals and petals 5 each(?); fruit globose, about 6 cm. long (Brazil).4. *D. acuminata*.

Leaves variable, broadly ovate, ovate-oblong, or oblong-oblanceolate, usually less than 3 times longer than wide; sepals and petals 4 each; fruit depressed-spherical, about 2.5 cm. long (Peru and Brazil).....5. *D. Wallisii*.

1. *Dilkea parviflora* Killip, sp. nov.

Scandens, lignescens, ubique glaberrima; folia obovata, apice rotundata, basi subrotundata vel subacuta, coriacea; flores pro genere parvi, albidii, in glomerulis densis subsessilibus, pedicellis crassis, brevibus; coronae filamenta externa anguste liguliformia, sepalis subaequalia, interna anguste flabellata; ovarium subsessile.

Woody vine, glabrous throughout; leaves obovate, 15 to 18 cm. long, 8.5 to 10.5 cm. wide, rounded at apex, subrotund or subacute at base, entire, coriaceous, lustrous; flowers white, in dense, subsessile glomerules, the pedicels stout, about 2 mm. long; sepals 4, oblong, 1.2 to 1.5 cm. long, the 2 outer 8 to 10 mm. wide, the inner 5 to 6 mm. wide, obtuse; petals 4, as long as the sepals, slightly narrower, obtuse; corona in 2 series, the outer filamentose nearly to the base, the filaments narrowly liguliform, about 1.3 cm. long, the second series cleft nearly to the base into narrowly flabellate segments about 1 cm. long, which are densely crispate-floccose in the upper half; stamens 8, their filaments about 6 mm. long, united at very base; anthers linear-oblong, 3 to 3.5 mm. long, nearly 1 mm. wide at base; ovary subsessile; styles 1.2 to 1.5 cm. long, the united portion barely 1 mm. long; stigmas 1.5 to 2 mm. wide.

Type in the United States National Herbarium, No. 1,456,095, collected at Mishuyacu, near Iquitos, Department of Loreto, Peru, altitude 100 meters, April 2, 1930, by G. Klug (No. 1158). Duplicate at Field Museum.

I hesitate to propose a new species in this genus inasmuch as the other species may well have to be reduced to one. The flowers, though fully developed, are much smaller than in the other species; the gynophore is almost completely lacking; and the anthers are proportionately broader.

2. *Dilkea retusa* Mast. Trans. Linn. Soc. 27: 628. 1871; in Mart. Fl. Bras. 13, pt. 1: 534. pl. 106, f. 1. 1872.

Woody vine, glabrous throughout; petioles stout, 2.5 to 3 cm. long, glandless; leaves cuneiform, 15 to 20 cm. long, 7 to 11 cm. wide, at apex truncate, usually retuse toward center with the midnerve terminating in a very short lobe, at base cuneate, coriaceous, lustrous, the lateral nerves divaricate at nearly a right angle from the midnerve, slightly ascending, anastomosing into a submarginal nerve; flowers white, in compact, 6-8-flowered, subsessile glomerules, the pedicels about 1 cm. long; bractlets subulate, about 0.7 mm. long; calyx tube campanulate-funnel-shaped, 8 to 12 mm. long, 8 to 10 mm.

wide at throat; sepals 4 or 5, at first united below middle into a funnel-shaped tube, at length separating, oblong, 1.5 to 2.5 cm. long, obtuse, the 2 outer 5 to 6 mm. wide, the 2 inner 3 to 4 mm. wide; petals 4 or 5, subequal to the sepals, 3 or 4 mm. wide; corona in 2 series, the outer filamentose to the lower quarter, the filaments liguliform, 2 to 2.5 cm. long, the inner united near base, filiform in lower half, spatulate-dilated in upper half and margined with floccose, crispate threads; stamen filaments 2 to 2.5 cm. long; anthers narrowly linear; ovary ovoid, short-stipitate, the stipe stout, about 3 mm. long; styles about 2.5 cm. long, united for about 11 mm. above the base; stigmas about 2 mm. wide.

TYPE LOCALITY: Manaus, Amazonas, Brazil.

ILLUSTRATION: Mart. Fl. Bras. 13, pt. 1: *pl.* 106, *f.* 1.

DISTRIBUTION: Amazon basin of Peru and Brazil.

PERU: Loreto: Mishuyacu, near Iquitos, *Klug 1017* (F, N, Y).

BRAZIL: Amazonas: Manaus, *Spruce 1320-5* (K, type).

3. *Dilkea Johannesii* Barb. Rodr. *Vellozia* 1: 22. 1891; 3, pt. 1: *pl.* 10. 1891.

Dilkea Ulei Harms, *Verhandl. Bot. Verein. Brandenburg* 48: 184. 1906.

(?) *Dilkea Johannesii* var. *parvifolia* Hoehne, *Comm. Linh. Tel. Matto Grosso, Anexo 5, Bot. pt. 5: 73. pl. 111.* 1915.

Low shrub, with scandent branches, without tendrils or sometimes with a few weak ones, glabrous throughout; petioles 1 to 3 cm. long, enlarged at base, glandless; leaves oblanceolate or oblong, 12 to 30 cm. long, 6 to 8 cm. wide, abruptly acuminate, attenuate at base, coriaceous, lustrous, the lateral nerves divaricate at nearly a right angle from the midnerve and united into a sinuate, submarginal nerve; flowers white, in subsessile, axillary or terminal, compact clusters, the pedicels up to 1 cm. long; sepals 4, at first united into a cylindric tube, soon separating, linear-oblong, obtuse, 2 to 2.5 cm. long, the 2 outer about 10 mm. wide, the 2 inner about 5 mm. wide; petals 4, subequaling the sepals, about 5 mm. wide; corona in 2 series, the outer filamentose, the filaments narrowly liguliform, 2 to 2.5 cm. long, the inner tubular, cleft above the middle into lacerate, floccose segments; ovary ovoid, short-stipitate; fruit ovoid, 7 to 9 cm. long, about 3 cm. in diameter, acuminate, yellow; seeds ovoid, about 1 cm. long and 7 mm. wide, slightly compressed.

TYPE LOCALITY: Manaus, Brazil.

ILLUSTRATIONS: Vellozia 3, pt. 1: *pl.* 10; (?)Comm. Linh. Tel. Matto Grosso, Anexo 5, Bot. pt. 5: *pl.* 111.

DISTRIBUTION: Middle Amazon basin, Brazil.

BRAZIL: Amazonas: Manaus, *Ule* 5381a (B, type of *D. Ulei*, Go); *Ducke* 500 (N). Campina de Tanacoera, lower Rio Negro, *Ducke* 11535 (Gen, Go).—Pará: Faro, *Ducke* 3718 (Go), 8460 (Gen, N, P), 8692 (Gen, Go). Obidos, *Ducke* 12040 (Go).

LOCAL NAMES: "Akuti-kaá," "páka-rupia."

Ducke has observed that the leaves of *D. Johannesii* are quite variable, even in an individual plant.

Hoehne's variety *parvifolia* may well represent another species. The illustration shows leaves narrowly oblong or narrowly oblanceolate, 8 to 12 cm. long and not more than 2 cm. wide, their lateral nerves strongly ascending and not at all anastomosing near the margin.

4. *Dilkea acuminata* Mast. Trans. Linn. Soc. 27: 628. 1871; in Mart. Fl. Bras. 13, pt. 1: 535. *pl.* 106, f. 2. 1872.

Scandent shrub, glabrous throughout; petioles 1 to 1.5 cm. long, glandless; leaves oblong-oblanceolate, 15 to 35 cm. long, 4 to 14 cm. wide, abruptly acuminate, attenuate at base, coriaceous, lustrous, cartilaginous at margin, the lateral nerves divaricate or ascending; peduncles apparently solitary, 4 to 6 cm. long; flowers white; sepals 4 (or 5?), oblong, about 3 cm. long, obtuse; petals 4 (or 5?), subequal to the sepals; corona, stamens, and style similar to those of *D. retusa*; fruit globose, about 5 cm. in diameter, coriaceous.

TYPE LOCALITY: Manaus, Brazil.

ILLUSTRATION: Mart. Fl. Bras. 13, pt. 1: *pl.* 106, f. 2.

DISTRIBUTION: Amazonian basin of Brazil.

BRAZIL: Amazonas: Manaus, *Spruce* 1320-3 (K, type).

There are many points of uncertainty regarding this species. It was first described in the *Transactions of the Linnean Society* in a resumé by Masters of his treatment of Passifloraceae for the *Flora Brasiliensis*, in press at the time this resumé was published. The descriptions of both *D. acuminata* and *D. retusa* in the *Transactions* are much briefer than in the later publication, and do not mention the fruit, though there is a description of fruit in the generic diagnosis. In the *Transactions* two specimens are cited under *D. retusa*, *Spruce* 1320-5, Barra (i.e., from Manaus), and a Martius plant from

Ega. Under *D. acuminata* a single collection is cited, *Spruce 1320-3*, from the forests of Barra. In the *Flora Brasiliensis* the Martius specimen is cited under *D. acuminata*, not under *D. retusa*. There is no description of the fruit of *D. retusa* in the description in the *Flora Brasiliensis*, but the fruit of *D. acuminata* is described in much detail, and the accompanying figure of this species shows a leaf and a single large fruit, which agree perfectly with the description. Both of the Spruce specimens, the types of these two species, are without fruit. Hence it is probable that the Martius specimen, which I have not seen, is a plant in fruit and is the original of the drawing in the *Flora Brasiliensis*, and that its citation under *D. retusa* in the *Transactions* was an inadvertent error.

The lateral nerves of the leaf figured in the *Flora Brasiliensis* as *D. acuminata* are much more ascending than in the Spruce type and they irregularly anastomose toward the margin, in these respects resembling *D. Wallisii*. Perhaps too much importance has been given to the matter of nervation, for there is some variation in the specimens I am referring to *D. Wallisii*, even in individual specimens. I am assuming for the present that the illustration in question applies to *D. acuminata*.

5. *Dilkea Wallisii* Mast. in Mart. Fl. Bras. 13, pt. 1: 622. *pl.* 106, *f.* 3. 1872.

High-climbing, woody vine, glabrous throughout; petioles 1.5 to 3.5 cm. long, glandless or bearing near apex 2 sessile, oblong glands 2 to 2.5 mm. long; leaves variable in outline, broadly ovate, ovate-oblong, or oblong-ob lanceolate, 12 to 15 cm. long, 5 to 10 cm. wide, abruptly acuminate at the rounded apex, rounded or cuneate at base, coriaceous, lustrous, the lateral nerves ascending, irregularly anastomosing near the margin; flowers white, in sessile glomerules or short-spicate, the pedicels 1 to 1.5 cm. long; sepals 4, at first united below middle into a cylindric funnel-shaped tube, soon or rather tardily separating to the base, oblong, 2.5 to 3 cm. long, the 2 outer about 1 cm. wide, the 2 inner about 5 mm. wide; petals 4, about as long as the sepals; corona in 2 series, the outer filamentose, the filaments narrowly ligulate, 2 to 2.2 cm. long, the inner membranous at base, filiform below the middle, spatulate-dilated in the upper half and margined with floccose, crispate threads; stamen filaments filiform, 2 to 2.5 cm. long; anthers narrowly linear; ovary ovoid, short-stipitate, the stipe 3 to 4 mm. long; fruit depressed-spherical, up to 2.5 cm. long, and 4.5 cm. in diameter.

TYPE LOCALITY: Brazil (described from a drawing made by G. Wallis).

ILLUSTRATION: Mart. Fl. Bras. 13, pt. 1: *pl.* 106, *f.* 3.

DISTRIBUTION: Amazonian basin of Venezuela, Peru, and Brazil.

VENEZUELA: Amazonas: San Carlos, Río Negro, *Holt & Gehriger* 292 (N).

PERU: Loreto: Florida, Río Putumayo, at mouth of Río Zubineta, *Klug* 2100 (N).

BRAZIL: Pará: Obidos, *Ducke* 16940 (Gen, N). Pará, *Ducke* 21307 (K, N, Ut).

This species was proposed by Masters in an addendum to the main treatment in the *Flora Brasiliensis*, and was based upon a painting made by Wallis and reproduced in the monograph. Masters gave no description, merely saying that the species differed from the other two in the form of the leaves and the nature of the inflorescence.

The specimens cited above exhibit great diversity in leaf shape, a point mentioned by Ducke. Some of the leaves certainly show little resemblance to those figured by Masters.

The Peruvian collection is referred here with much hesitation; it may represent *D. acuminata* or an undescribed species. The leaves are exactly oblanceolate, tapering from well above the middle to the base, and there is almost no distinct petiole. The blades are 28 to 37 cm. long and 9.5 to 14 cm. wide at the widest point. Their nervation agrees well with specimens of *D. Wallisii* at hand, and the flowers do not show any important differences. Klug states that his specimens were from a tree about 3 meters high, whereas Ducke emphasizes the fact that *D. Wallisii* is a vine climbing very high. Mature fruit of the Peruvian plant is necessary.

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ADDENDUM

Psilanthus Juss. Ann. Mus. Hist. Nat. 6: 396. 1805 (doubtful publication) (as synonym of *Psilanthus*, p. 27).

P. erubescens Macf. Fl. Jam. 2: 154. 1850 (as synonym of *P. rubra*, p. 218).

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